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New Guinea's Rare Birds and Stone Age Men

Filming Exotic Birds of Paradise and Living with Primitive Tribes, an Ornithologist Scores Important New "Firsts"

By E. Thomas Gilliard

HERE in the cloud forest of New Guinea's central highlands the night had been long and wet, but dawn had nearly come now, and the rain had stopped. The two natives who had slept fitfully on a bed of leaves beside my cot crouched, shivering, over their smudgy fire.

To the tribesmen in a near-by hut I shouted, "Workem kit!" ("Get the food ready!"). Soon a big, jet-skinned mountaineer entered the shack carrying bread, a can of butter, and a pot of steaming coffee.

A few minutes later we took off through the dripping vegetation, feeling our way over a steep, muddy trail cluttered with fallen timber. Through rhododendronlike growth we climbed steadily to 7,500 feet until, just ahead, we made out our well-camouflaged objective—the 50-foot tower of poles and vines we had fastened together the day before. Up its shaky, slippery ladder we clambered, a small fortune in lenses and cameras swinging from our shoulders and necks.

On the Trail of a King

To an onlooker our patrol might well have appeared a sinister operation. But to me it suddenly seemed a little comic. Here I was, half a world away from my home in Manhattan, clinging to a flimsy rung high above a forest no white man is believed ever to have visited. Why? Just to see some birds!

For this I had bought, nine months before, food and equipment for 900 man-days in one of the remotest parts of the globe. For this I had stocked up with—among other things—enough yeast and flour to bake 200 loaves of bread, and half a dozen soccer balls to give to important chiefs. In the National Geographic Society's headquarters at Washington, I had worked day after day striving to master the mysteries of electronic lighting and the complexities of special cameras.

Yes, all this just to see some birds. But what birds! Our quarry was no less than the birds of paradise—especially the most spectacular of them all, the King of Saxony. Only one specimen had ever been taken alive to a zoo, and that one died almost immediately.

No still pictures of this bird of paradise in its native habitat had yet been made. Until our 1950 trip to New Guinea two years before, only one or two white men had witnessed its peculiar, long-fabled dance of courtship.*

The King Woos a Queen

Despite the rarity of paradise birds, we had already seen their plumes by the score. Natives hunt them with the intensity of gold prospectors, and on special occasions wear fantastic arrays of plumes beyond all price. Reserved for chiefs are those of the King of Saxony, whose wooing we now hoped to watch (pages 444–445).

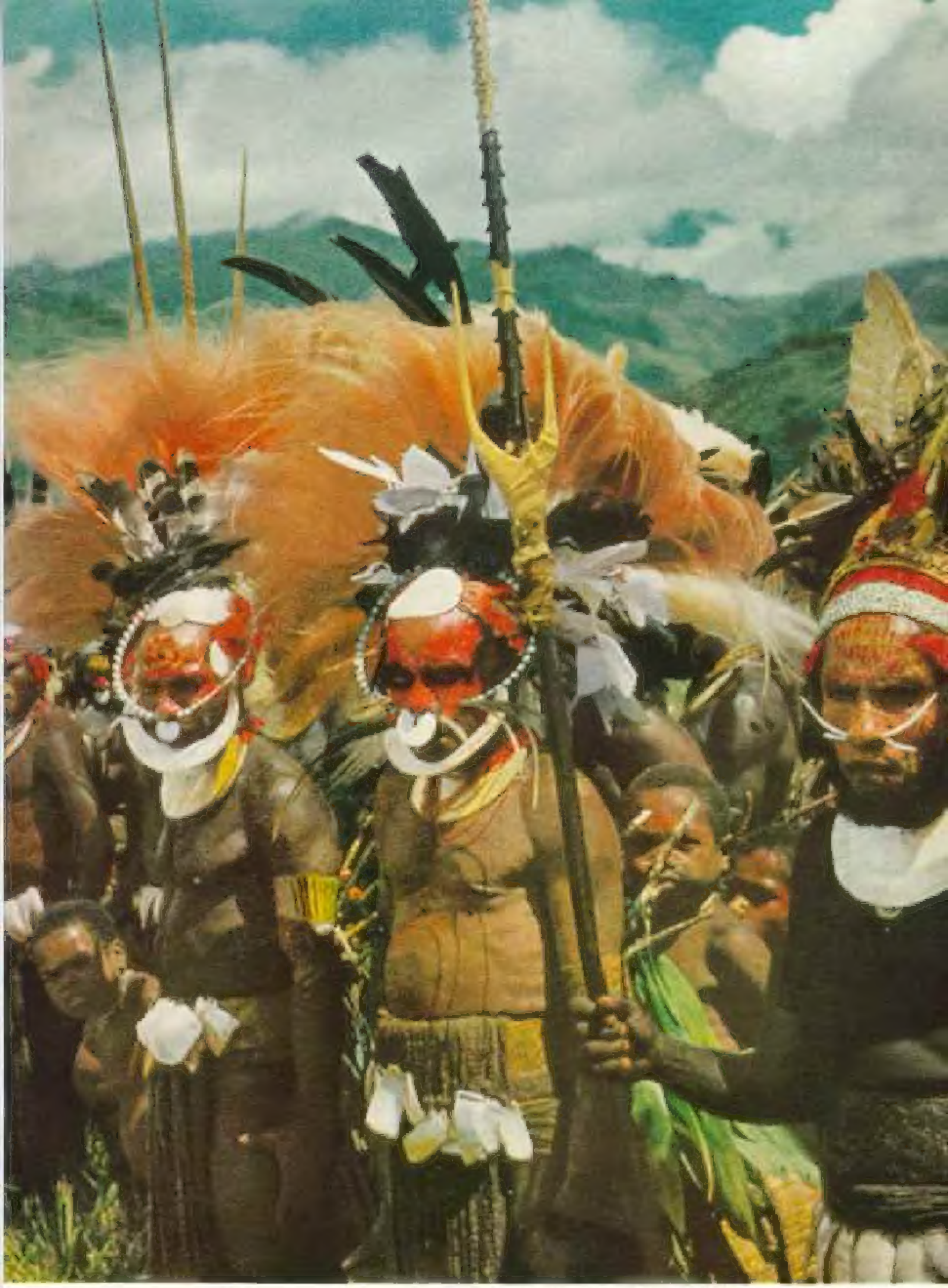
Reaching the top of the tower, I set up tripods, cameras, and sound recorder. Then I aimed a 16-inch telephoto lens at a little spirelike limb that rose in the mist above the crown of a subtropical forest giant.

Presently, in the first rays of sunlight, I heard from afar soft hissing notes which sounded more reptilian than birdlike. My

* See "Strange Courtship of Birds of Paradise," by Dillon Ripley, National Geographic Magazine, February, 1950.

Stone Age Man Meets the 20th Century in New Guinea's Kubor Range

This de Havilland Dragon ferried the author from Lae into the 5,000-foot-high Wahgi Valley. Curiosity almost wrecked the plane when the men, gathered for a dance festival, rushed blindly across the landing field.



Kodachrome by F. Thomas Gilliard, American Museum-Armand Denis Expedition

Spear Bearers, Resplendent in Plumes, Shells, and Paint, Welcome the Author to Kup

Many Kup people, remembering Mr. Gilliard from a previous journey, greeted him as an old friend. Father Michael Hodnar, a pioneer missionary, maintains the air strip; Kup is virtually inaccessible by land.

guide stiffened and pointed. We waited minute after long minute. At last a small bird, hardly larger than a robin, flew to the perch. Dipping and bowing, he began like a drunken devil to wave and toss his weird, exotic plumes.

Were they feathers? We knew they were; yet they strained credulity. Pointed, brilliant, they seemed to spring like horns from the bird's crown, trailing behind him in two fantastic parabolas. Here was the King of Saxony indeed, panoplied like a Teutonic monarch riding to battle with great plumes streaming from his casque of iron.

Through the binocular I saw that the bird's breast was egg-yellow, his plumes sky-blue. He grasped a slender vine and, after a few moments of nervous gawking, began to bounce up and down, like a diver testing a board. The short black-velvet cape covering his back spread out over his shoulders like the partly opened wings of a beetle.

Gradually the tempo of his bouncing increased. The magnificent plumes swept forward and down like the tines of a huge fork. Uncontrollably excited, the King became a trapeze artist. From his beak issued a series of hissing notes, like steam escaping.

I scanned the perch for the female bird who must be there. I could not spot her rather drab body, but neither had I been able to see her in 1950, the only other time I had witnessed this dance. Yet on the movie film we brought back it was possible to glimpse her demure entry into the nuptial chamber.

As suddenly as it began, the dance concluded. The King, reaching a climax of ecstasy, leaped upward in a great flutter of wings, then flew off to another of his dance trees, beyond our visual range.

Climax of Centuries-old Search

The scene we had just watched was, in a way, the culmination of a search some four centuries old. The date when the plumes of a bird of paradise first reached Europe is uncertain, but we know that the first definite description of them came from two skins brought back from the Moluccas in 1522 by Magellan's men on their return from the circumnavigation of the globe.*

Few things from the Orient stirred the imagination of Europeans more. The plumes of later specimens were attached to skins from which the feet and legs had been removed, a procedure still followed today by native collectors. Europeans decided that these extraordinary birds had no feet and that they must have been blown to earth from a celestial paradise.

The legend faded, of course, but the name remained: These were the "footless" birds of paradise—species *apoda*. And, because white men over the years continued to rely exclusively upon aborigines to trap or shoot the specimens, the birds remained long among the least-known of all the spectacular forms of animal life inhabiting the world.

To dispel some of the mystery which still clung to these birds, I had led an expedition for the American Museum of Natural History, New York City, into remote ranges of New Guinea in 1950.† We had collected 171 species of birds, among them 19 forms entirely new to science. In addition, we had found the display grounds of bowerbirds and of some of the rarest of the birds of paradise.

How the 1952 Expedition Began

I had wanted, however, to go back again. We had done much, but there was much yet to be discovered, pinned down, recorded on sound track, film, and notebook. Thus I was elated when, at the Explorers Club in New York one evening, a tall, deeply tanned member approached me, introduced himself as Armand Denis, and suggested I organize another expedition to New Guinea.

Quickly we came to an agreement. Denis (producer of many fine films, among them *Dark Rapture* and *Savage Splendor*) would be the leader; I, the general manager. Robert Doyle, an Australian explorer; Robert Carmet, a French photographer; and young Henry Kaltenthaler, a Philadelphia botanist, would accompany us. So would Denis's wife Michaela, and my wife Margaret. Both were veterans of expeditions to Africa, Asia, the Philippines, and South America.

Our mission would be multiple: To film the Stone Age men who inhabit the land of the

* See "Greatest Voyage in the Annals of the Sea," by J. R. Hildebrand, National Geographic Magazine, December, 1932.

† See "New Guinea's Paradise of Birds," by E. Thomas Gilliard, National Geographic Magazine, November, 1951.

 Kodachrome by E. Thomas Gilliard, American Museum-Armand Denis Expedition

Wrinkled Warrior Bears Plumes of Paradise Like a Blazing Torch in the Sky →

New Guinea boasts perhaps the most splendidly arrayed men in all the Pacific. This highland "strongfellow," or subchief, looking older than his 50 years, proudly carries the skin and plumes of an upended Greater Bird of Paradise (pages 437, 438, and 439).

His fur cap comes from the *kapul*, a forest marsupial related to the opossum. Green scarab beetles encased in orchid fiber and cowrie shells sewed to a headband serve as the jewels of his crown. A strand of pigtails around his neck, a bailer shell on his forehead, and sections of mother-of-pearl on neck, chin, and nose complete the ensemble.

Pig grease and charcoal blacken his face in the approved New Guinea manner: the darker, the handsomer. Bow and arrows peep above his shoulder.

 E. Thomas Gilliard, American Museum-Armand Denis Expedition

Wahgi Valley, Land That Time Forgot, Shelters a Hidden World of Stone Tools

Two decades ago Michael Leahy, a gold prospector, made front pages the world over by discovering this valley with its thousands of Stone Age savages. This vista confronted Mr. Leahy when he topped a mountain barrier 9,400 feet high. The Chimbu River snakes south through the Bismarcks (foreground) and across the shadowy Wahgi Valley toward the fog-shrouded Kubors. Bundi Track, a pioneer trail, scratches the landscape at lower right.

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Drawn by Lt. Jo R. Abbott

New Guinea, One of the World's Last Frontiers, Harbors a Paradise of Birds

Onetime German territory, North-East New Guinea is now administered by Australia under the United Nations. Last year the author made his fourth visit to the island, serving as manager and ornithologist of the American Museum of Natural History-Armand Denis Expedition. Mr. Denis, film producer and expedition leader, made a photographic record of New Guinea's birds of paradise and the people who wear their plumage, even as American Indians wore turkey feathers. His film is being released soon. Veterans of MacArthur's drive to regain the Philippines will remember the Papua campaign of 1942–43 and the Hollandia landing in 1944.

birds of paradise, to photograph the courtship and display of the birds themselves for the American Museum, and to make still pictures of many other birds and animals.

It was one thing, of course, to plan such an expedition from the comfort of our armchairs, but quite another to get it into territory long charted as "uninhabited." We never could have accomplished it without the sympathetic help and interest of the New Guinea authorities.

When, for example, we arrived at Lae, our jumping-off place on New Guinea's east coast, we found that air travel into the interior no longer looked quite as simple or safe as it had from New York. A rather dispiriting list of accidents, in fact, had piled up since our last flights out of Lae in 1950.

In the interim, the pilot of Count N. C. G. F. Gyldenstolpe, a Swedish naturalist, and all the count's scientific materials had been lost in 1951, smashed against a hidden peak of the Bismarcks. The pilot we had last flown with in New Guinea had crashed on a mercy flight two days after we left. Bill Lamont, veteran of our 1950 Mount Hagen expedition, had cracked up at Madang. Father Michael Bodnar had barely survived a wreck in the interior.

Even our own pilot for the forthcoming venture—the much-decorated wartime flyer, Robert Gibbes—had lost two planes in the previous two years. When my wife and I, then, climbed into a 15-year-old light plane for a reconnaissance flight with pilot Larry Crowley, we experienced just a touch of misgiving.

We took off safely, however, skimming the 100-foot-high matted forests which border Lae, and followed the broad valley of the Markham River (map, above).

Threading the Bismarck Passes

For an hour and 10 minutes we flew inland, until before us loomed the 12,000-foot peaks of the Bismarck Range, fringed with clouds. Dodging rafts of mist, Crowley spiraled upward, searching for an opening. At last he found one, and we bored through the Chimbu gorge and planed down a narrow valley. We headed toward a plateau which extends north from the Kubor Range in a series of lobes overlooking the Wahgi River (opposite).

Spider-webbed with ancient trails, deeply scored here and there by wider roads, the area under cultivation looked prolific and luxuriant. Flat-topped promontories capped with casuarina forest and dotted with native gardens

▲ A Pack Train Treks Across Wasteland Trails in the Kubors

Early in the morning before a trip the expedition leader sings out for the area's strong-fellow and tells him how many carriers are needed, whereupon the chief summons his followers with a bellow.

Just as a drum message is relayed in Africa, the call is picked up far down the valley and repeated again and again. So faithfully do New Guinea men observe this custom that messages swiftly travel as far as 50 miles. The wave of sound rising and falling ever farther awes Western man.

Offers of beads and shells bring porters running into camp. Bearers carry 45 pounds each for a large pinch of beads a day.

This pack train heads over well-marked trails toward Mount O-Mar, lost in the clouds a two-day march away.

Inset: Stone artifacts hundreds of years old capture the attention of expedition leader Armand Denis and his wife Michaela (page 487).

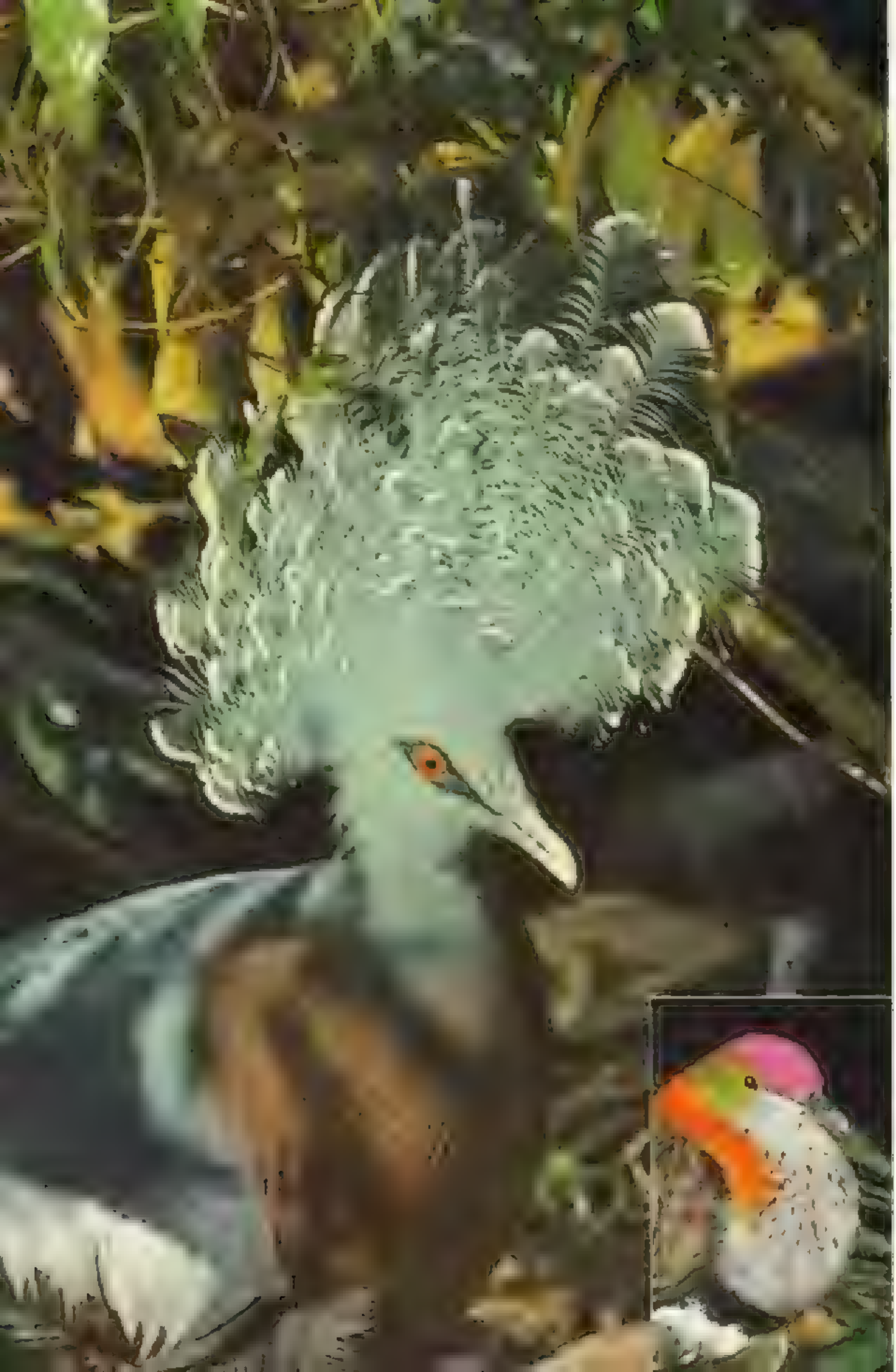
▶ "Atop a column of porters, we crossed the Omung like a disjointed centipede," says the author.

Kodachromes by E. Thomas Gilliard and Henry Kalmthaler, American Museum-Armand Denis Expedition

Figure 2: Nothing Could Stop the Surge of Mobs That Came Calling Every Day

[illegible]

An Expedition Concerning the Tree House And Dresses of a Rare Bird



stretched between the hills like outflung fingers (page 435). On one of these lay a green strip. This was our destination, the tiny airfield maintained by Father Homuz at Kup.

Threading the tight gorges of the Waiad, Crowley set our little plane down expertly, then swerved it sharply as a horde of savages converged upon us. They were not trying to scalp us—just to greet us (page 422).

We knew they had gathered for some ceremonial occasion, for they were all splendidly plumed in rare bird of paradise feathers.

They were followed a moment later by Father Homuz himself, one of those grand, self-effacing pioneers one meets occasionally in the big bush, who had in so many ways befriended us on our 1950 expedition.

We joined forces again with much back-slapping and enthusiasm, in which the good padre participated with even greater fervor when he learned we wished to plant a base camp in his bailiwick. For several hours we explored the vicinity, finally deciding on a nearby promontory for our site.

Then I sent word to Maima, chief of the Kubor tribes, asking him to come and see me on my return to Kup later. It was important that he should. Two years before, we had plunged deep into his realm, entering valleys no white foot had yet trod, and, with Maima's assistance, had climbed to the high plateaus where the rarest birds of paradise make their homes. With his cooperation, our second exploration might be even more profitable.

Bush Telegraph Brings Help

Back to Lae we flew and, on March 29th, returned in Gibbes's plane with two tons of gear and Robert Doyle. This time we set natives to constructing buildings which would comprise our base camp at Kup—quarters, a mess hall, cookhouses, work sheds, a powerhouse, storehouse, and dormitories, the whole compound surrounded by a large fence.

By the time we were joined by Margaret, native boys who had worked for us in 1950 had picked up word of our arrival on the bush telegraph. Beaming from ear to ear, they began to drift into camp. Among them were Mar, a good taxidermist ready for any [illegible] but equally ready to make himself scarce when confronted with more routine tasks; and Tai, courageous enough to climb the topmost pinnacle of Mount Wilhelm, but often more preoccupied with various love affairs.

Chief Maima Arrives—with Gifts

Finally came Maima himself at the head of a retinue of 100 men, all decorated with the most vivid paradise plumes and bearing gifts of food, dead birds, and live pigs slung from poles. In one hand Maima clutched a spear; in the other, a badly worn soccer ball.

I recognized the ball as the one I had given his clan for its help two years before. After we had greeted each other as brothers, I withdrew to our storehouse with smug satisfaction at my forethought. Howls of pleasure greeted the new ball I brought.

Promptly I called a meeting of the mountain men. Forming a wide circle about me, they watched with speculative eyes as I unpacked a big case. From it I drew, one after the other, mounted birds of paradise.

First I showed them a male Greater bird, faded from its 50 years at the Museum. They shouted its native name, "*bounde!*". Then came the Superb, "*kongeral!*"; the Magnificent, "*kombokl!*"; Princess Stephanie's, "*meg!*"; the Sicklebill, "*tombal!*"; the Blue, "*gov!*"; the Crestland Bowerbird, "*cell!*"; and finally the most bizarre of all, the King of Saxony, "*kaabal!*".

Next I presented color pictures of themselves and their mountains which had appeared in the NATIONAL GEOGRAPHIC MAGAZINE. Joyfully they passed the pages around, marveling at their own likenesses.

Then I explained through my pidgin interpreter that this time I intended not to shoot or purchase birds, but to photograph them in their habitat. Holding up a gold-tip shell (one of 300 I had ordered from a pearling company on Thursday Island), I said that any man who could show me the dance hall of a bounde would receive one shell, the equivalent of seven weeks of labor. I would also give one shell for a King of Saxony and for other varieties of birds of paradise. For a MacGregor's bird, the price would be three; we ornithologists knew virtually nothing about this rare creature, not even whether it was a true bower bird or a bird of paradise.

With that, our men vanished into the jungle, 30 strong. The hunt had begun.

A few days later the first messengers filtered

Crowned Pigeon Carries a Lacy Crest Like a Dowager's Frilly Hat

Green tailored *breast*, the **Crowned Pigeon**, is as closely identified with New Guinea as are the birds of paradise. Like them, it was once slaughtered for gorgeous lacy feathers. Today, although protected mildly by government decree, it seems doomed to extinction like its relative the dodo. Natives continue to hunt the chicken-size bird for its delicious white flesh. When one of a flock is shot, the others gather on low limbs, stunned at the hunters, and share a similar fate. One man, zoo director Paul L. Breese of Honolulu, has succeeded in keeping the bird.

Insets: **Superb Fruit Pigeons** (*Ptilinopus superbus*) are native from Celebes and New Guinea to Australia. Wearing a variety of colors, it appears as gaudy as the fruit on which it lives.

New Guinea Belles Revive Past in Paints

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

back into camp with stories of discoveries made. I was at the cookhouse one morning when Tau, my No. 1 boy, rushed in to say, "Master, Master, bush Kanaka he talk. He talk talk plenty plenty bounce stop along diwai belong em. Plenty man, e Mary. Singsing morning time true." ("Kanaka man says lots of pounde come to his trees. Many males and females go through the noisy courtship dance every morning, early.")

That sounded good to me, of course. The following day at dawn I took five men, my cameras, binocular, axes, and emergency cover to the place which the native had spotted. It was a clump of casuarinas two hours' walk distant, the site of an old native graveyard.

From 400 yards away I could hear the high-pitched cawing of what seemed to be crows, interspersed with low, repeated growls. In the lacy top limbs a dozen birds flew about excitedly. Crawling through the grass with great caution, I reached the butt of a large tree where I could lie without being seen.

Strange Antics of Courtship

Looking up, I saw on a limb high above me the most gorgeous bird I had ever laid eyes on. [illegible] through the leaves illuminated his perch, and, against the dark green of the foliage, his flame-colored flank plumes shone like live fire.

Slowly he hopped up the branch, dipping his head in a snakelike manner, grasping at little twigs and knobs and shaking them, his wings partly open and his plumes nervously twitching. [illegible] turned sidewise and, like a child jumping with both feet at once downstairs from step to step, he made a series of little leaps down the pencil-size incline to the bottom.

There, suddenly, he raised his wings, lowered his neck in a heronlike crook, and began to thump the wrists of his wings above his back—rapidly and strongly enough so that I could hear them distinctly 60 feet away. At the same time he cast his plumes upward and backward in a carving spray. The whole rear of his body shook like a feather duster.

Two other males flew to limbs near by. One of them dared to land near the display perch itself, only to be charged and driven off by the indignant owner.

As for the females, six of them fluttered around within 5 to 50 feet of the dance limb. For the most part, they sat quietly aloof to the male's antics; but when he became greatly excited, lowered his head, and emitted a number of low, purring growls, they flew to perches directly above his pauly plumes, and even down to a spot beside him.

Once, in Australia's Taronga Zoological Park, I had seen an Emperor of Germany Bird of Paradise reach such a peak of ecstasy that he swung head down from his perch like a shimmering pendulum, his plumes cascading from his flanks like frantic white fans. As I watched the Greater bird preening and prancing along his limb, with head low and plumes high, I wondered if he might do the same.

And he did. A brilliant ball of plumage, he tumbled forward and swung beneath the perch, luminescent in the morning sun. A female flew to the limb and stood just above him. Reaching up, the male perked and fenced with her in a kind of continuation of their ritual. Then, as if upon a signal, the dance ended, and all the birds soared off toward a large wooded canyon to feed.

Back at camp we quickly organized a safari to return and capture this unusual dance on film. Thanks to the American Museum and the National Geographic Society, I had been showered with more elaborate equipment than any ornithologist of my acquaintance has ever carried into primitive country.

I had been forced, in fact, to train my bearers like an army mortar squad. At the head of my unit I placed a man with my color camera; attached to it was a reflex housing containing a 400-mm. telephoto lens. Behind him came a bearer with another camera, mounting a 200-mm. telephoto. Both cameras were mounted on ball-socket tripods.

Then came six men, each carrying a 35-pound power pack capable of producing a 2,000-volt flash for the speedlights. Next followed men with huge coils of rubber cable with waterproof couplings, an automobile battery, and boxes of extra equipment and film. I had only to sing out, and this platoon fell in with a minimum of confusion; we were off.

Trials and Tribulations

Unfortunately, on many occasions we resembled the King of France who marched up the hill with all his men and then marched down again. Nature seemed to conspire against us. Mist formed on our lenses. Persistent rain soaked our power packs—and detonated them with a shotgun blast that cleared the bush of every bird in the area. Worst blow of all, our electronic lights, on which we had placed such hope, proved tremendously effective scarecrows.

We knew well how wary the Greater bird of Paradise is—any bird of paradise, for that matter. Yet we had thought that by wiring the dance trees unobtrusively and positioning the lights with care, we could then retreat to our blinds many feet away and obtain photographs of great clarity, taken at 1/5000 of a second.

It was not to be. Even though we left the lights in place and went away for weeks at a time, the skittish birds never accepted them.

Frames Rise and Fall Like a Ballerina's Skirt as a Paradise Bird Dances in a Treetop

[illegible] **Greater Bird of Paradise** [illegible] *Paradisea apoda* [illegible] *Paradisea apoda* [illegible] in the wild.

* Shimmering Red Hair Worth a Chief's Ransom Grows from the Tail of a Glorified Cow

[illegible]

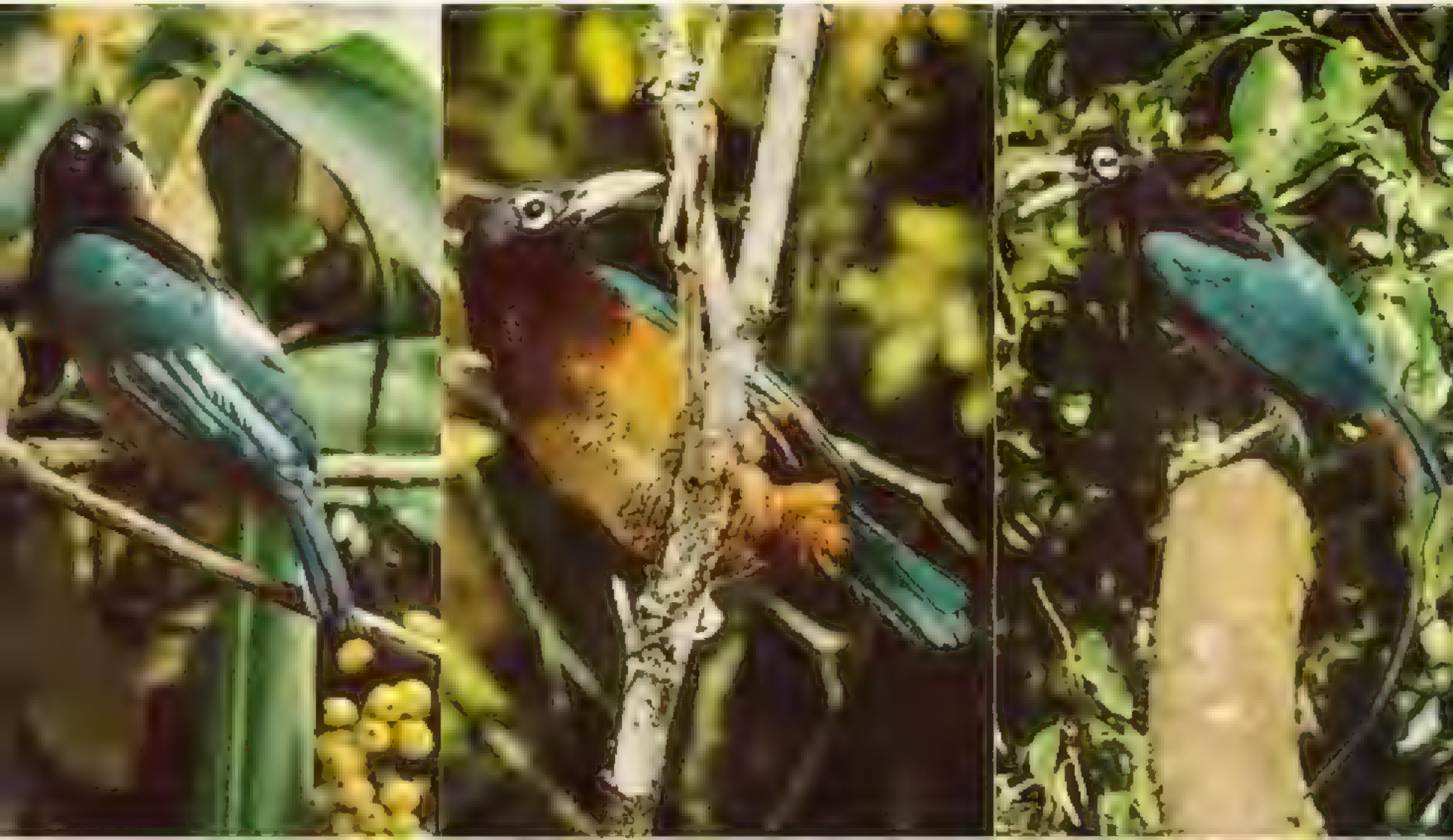
[illegible]

Like an Elizabethan Ruff, a Collar of Gold Decks the Magnificent Bird of Paradise

[illegible] **Magnificent Bird of Paradise** [illegible]

Austria's Crown Prince Rudolph of the Mayerling Tragedy Gave His Name to *Paradisaea rudolphi margaretae*, the Blue Bird of Paradise

When he discovered this species in the rain forest of the **Blue Bird of Paradise** [illegible] Summers with delicate lacy beauty. Wherever they [illegible] the forests, the Blue [illegible] Cenderawasih [illegible] 35 for a [illegible] (right). A female [illegible] [illegible] page 4[illegible]



A Bedizened Brow Carries New Guinea's Badge of Authority

[illegible]

"Young Fella Mary" Wears the Cape and Shield of a Superb Bird of Paradise

[illegible]

Turquoise Chest Shield Gleams Like a Mirror

[illegible]

King of Saxony Displays a Giant Fork Hung with Waxy Blue Bags Like Cellophane

Queen of Saxony Appears Drab Compared to Her Elegant Mate

Highland Cattle
Prize Sweepstakes Pictures

Lesser Bird of Paradise Resembles a Sharpened Lancelet Impressing a Tuft

[illegible] Lesser Bird of Paradise [illegible]

Delicate as Moth Antennae, Fernlike Crests Rise from MacGregor's Boss

[illegible]

[illegible] MacGregor's Bird of Paradise. [illegible]

[illegible]

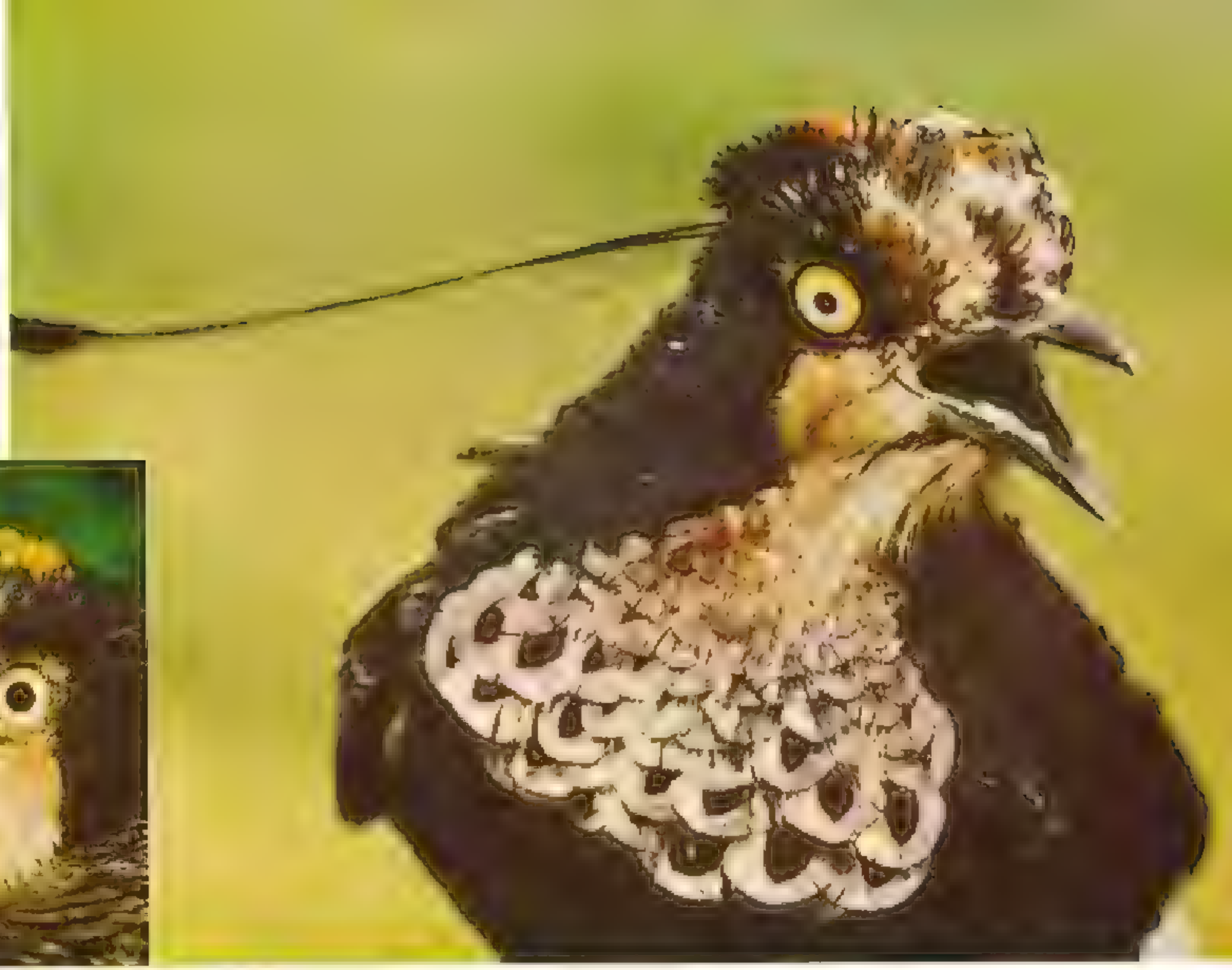
[illegible]

[illegible]

Queen Carola Screams Disaster

[illegible]

[illegible] Queen Carola Sassy Bird of Paradise [illegible]



- Princess Stephanie's Namesake Glitters in Emerald Brilliance — 116

Paradisornis stephaniae **Princess Stephanie's Bird of Paradise**, [illegible]

[illegible] **Wahnes' Sunspeed Bird of Paradise** [illegible]

[illegible] **Aramaya's Speckled Bird of Paradise** [illegible]

A Hunter Invades a Bowerbird's Elaborate Bridal Chamber

[illegible] Lauterbach's Bowerbird [illegible]

A Dowdy Bowerbird's Attract Mates with Skins, Berries and Stones

[illegible]

Museum Bosverhuis
Guards in Wooden Houses
in a Tropical Swamp

[illegible]

Lumberjack's Bosverhuis [illegible]

[illegible]

A Blazing Green Flashes High on the Cockatoo's Breastpanel

[illegible] Cockatoo Rosecrested [illegible]

[illegible]

[illegible]

[illegible]

Morio's Bird of Paradise

[illegible]

Our intentions may have been more honorable or innocent than those of the natives who kill them with shotgun and bow and arrow, but the birds apparently assumed that we had rigged some devilishly lethal device that should be shunned at all costs.

Our expectations, dashed by this first encounter with the Greater birds, were raised by the addition to our party a fortnight later of Robert Carmet, who has made excellent wildlife movies in Africa and elsewhere.

Carmet, it turned out, had been able to take only $84 with him from France. Yet he had made his way half around the world and arrived on time, in sneakers, to be sure, and not much else, but with cameras that rivaled my own.

We began planning a trek into the 12,000-foot mountains of the Kubor. Carmet remarked rather testily that the highest he had ever climbed was into the seat of a jeep station wagon, but he exchanged his sneakers for spiked boots willingly enough and, in the early hours of an April morning, our boss boy sang out for a party of bearers.

From under my mosquito net I heard the bellowed notes picked up by natives on the other side of the valley and relayed, in dwindling but still awesome volume, across the forests of the Wahgi and the Omong Rivers.

By 5 a.m. "seven-fella ten men" had assembled outside camp. We loaded these 70 bearers with tents, food, cameras, lights, weapons, and other gear and set off over rolly grasslands through Chief Matua's province (page 428).

In 10 days we reached the north slopes of the Cambia region, true Stone Age territory. Few natives here had even seen steel. Beside their low little grass huts lay their own tools—stone axes ground in the age-old manner on a dampened sandstone.

White Woman Amazes Natives

My wife was the first white woman these people had ever seen. They greeted her with amazement, dancing and howling around her. One huge native, coated with pig grease, hoisted her aloft and carried her through the procession for 20 or 30 yards.

Food proved no great problem. In exchange for salt, razor blades, powder paint, and matches, the natives brought us string bags of sweet potatoes, sugar cane, pigs, chickens, and even a few eggs. They wanted our trade goods; yet we noted that they had been able to live without them very well.

Fire, for example, they make by plucking a dried vine from their string aprons, threading it through a cleft stick, and sawing it back and forth until, under friction, it breaks into a punkhae glow.

Salt they manufacture by soaking bundle after bundle of dried grass in salt springs. These are then thrown on the fire and burned. In the ashes a salt cake forms amid the lye. When it is thick enough, they remove it and bind it with others into disks about the thickness of three or four phonograph records.

The Kubor people still make most of their decorative dyes and paints from seeds, soft stones, clays, and ashes, but quantities of beads from Czechoslovakia and Italy have filtered into the interior from the coast. We saw scarcely an aborigine who wasn't as festooned with beads as a gypsy fortuneteller.

Murder in the Stone Age

We noted these little encroachments of civilization with some alarm, not simply because we disliked seeing one of the world's last pockets of Stone Age people lose its pristine uniqueness, but because, paradoxically, it is the coming of the white man which tends to make the native rapacious.

Almost invariably explorers in New Guinea have found the aborigines friendly when first approached. Only after they have become aware of the treasures which the white man carries—shells and axes and trinkets—do their thoughts turn to murder and loot.

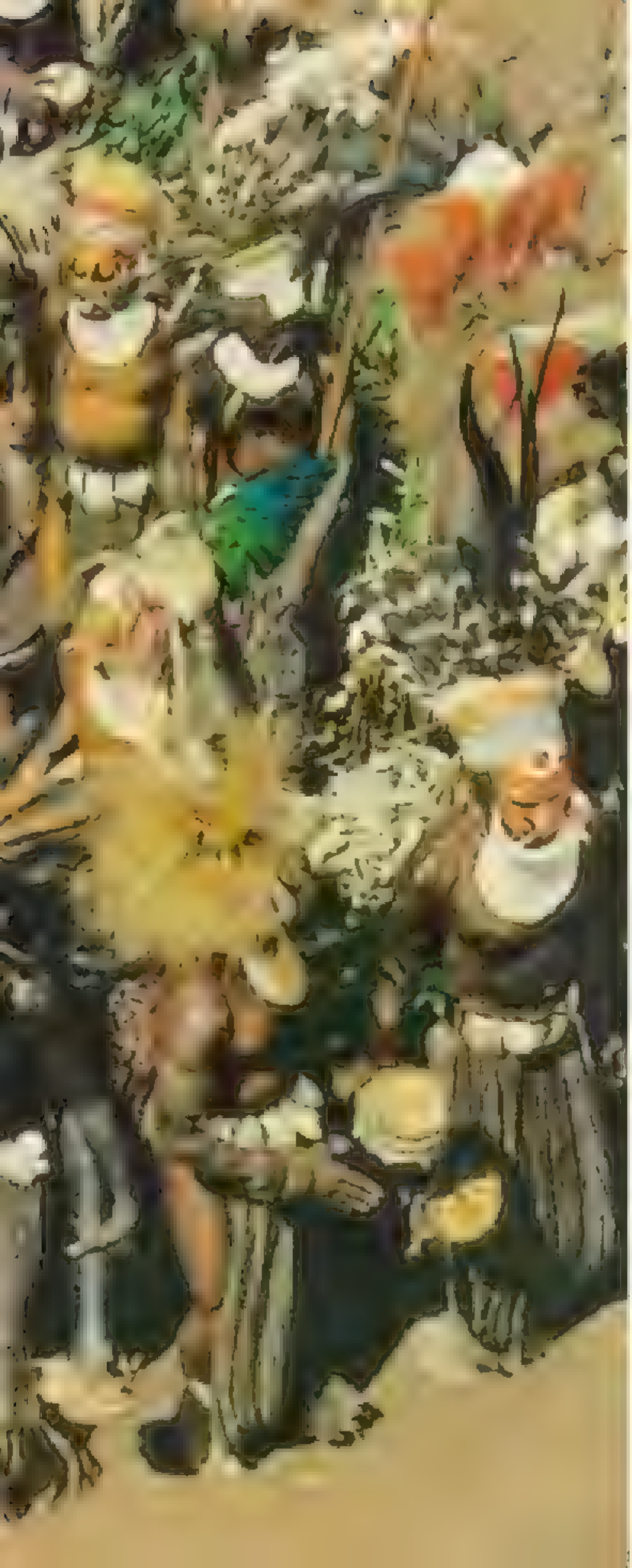
Heinuth Baum, a veteran of many sorties into the interior, died with a Kukukuku stone blade in his skull a few seconds after he had opened his trade box and revealed half a dozen steel axheads. The Leahy brothers—Michael and Pat—suffered near-fatal wounds in an attack on their camp in 1931 by natives who had always been quite amicable.

Nevertheless, as an ornithologist, I felt that whatever risks I was running among these Stone Age primitives were greatly outweighed by the rare opportunity I had to study New Guinea's strange birds and people.

And in New Guinea, in contrast to parts of Europe and America, the naturalist is regarded as almost sane. Here the savage is vitally interested in the plants and insects and animals of his region. To him, the white men who come to scratch for yellow metal in his stream beds are the ones who are "long-long"—crazy.

The native, moreover, is as well informed about flora and fauna as he is interested. Without any sort of written language he manages, nonetheless, to pass on from generation to generation a steadily increasing store of expert knowledge. I didn't find it always easy to believe, yet when I tested the Kubor people on some particular question, they invariably came through with top marks.

For example, a boy wandered into camp with a drab little nest made by a bird which he called a *dengufap*. I knew that this was a sort of flycatcher rarely seen in the Kubors.



Hands Slap Leather Skin and Feet Stomp Earth to the Mad Tempo of a Tribal Dance

[illegible]

[illegible]

Yet when I questioned a dozen different natives about the nest, each identified it correctly and without hesitation.

It was for this reason that I put great store by native opinion when we turned to one of our prime objectives in New Guinea, the settling of an old issue among ornithologists as to whether MacGregor's is a bird of paradise or a bowerbird.

The chief difference between the two is that bowerbirds usually clear a lot of ground and build their courtship chambers there, while birds of paradise customarily perform their love dances in trees. Birds of paradise, too, tend to have unusually developed plumes in contrast to the bowerbirds' short and inconspicuous appendages.

We thought we might have the definitive answer when a native who had taken part in our dragnet operation finally brought in a live MacGregor's. It was an adolescent male and so overwhelmed by being captured that I set him free, with it protest, as I frantically took portraits of it in color.

Yet even after I examined its six curious orange crest plumes, which it can retract into a slot of darker feathers on its crown, I could not say for sure, on this evidence alone, that it was a bird of paradise. Nor was the size and shape of its tail a determining factor.

Another consideration which had a bearing on my decision that this was no bowerbird was that the natives were positive it did not build a courtship chamber on the ground, as do most bowerbirds. Nor could we, in all our searching, ever find such a bird displaying there. As one ornithologist, I am willing to take the verdict of these local experts: MacGregor's is a bird of paradise (page 447).

Finding the King of Saxony

At long last, while we were ransacking the Kaiser Range, we caught up with the King of Saxony (page 444). Margaret and I had finished supper and were sitting by the campfire, huddled against the chill, when we dimly made out a wavering figure coming down the dark forest trail. Presently a gimlet-eyed native, virtually naked, stepped up to the flames, squatted, and began to warm his hands.

It was a custom I knew but never wholly relished: no traveler in these parts is ever denied the hospitality of one's fire. This is all very well, but it can become a little trying to have chaps dropping in and out of one's hut at any hour of the day or night, helping themselves to "gaw-ai-ka" from the blaze, or just subsiding onto their haunches and staring.

This time, however, our irritation quickly evaporated when Tai, my "turn-talk," informed me, "Dis fella he talk—s'baba grass belong em long fella to-mas, he stop long hop."

In short, a male King of Saxony Bird of Paradise had been sighted a day's walk distant. We needed no further urging. Next morning, and for several thereafter, we reconnoitered sudden trails on the flanks of Mount O-Mar. Finally we hit upon three trees within a mile of each other where various Kings displayed their plumage daily.

One of this trio was photographically impossible; at the second, the bird in residence was molting. So we picked the third and built near it our lofty, ramshackle tower.

Thus it was that I found myself, on that memorable morning, watching with avid eyes the sight only one or two other men had ever seen before—the love dance of the King.

In the days that followed, we tried repeatedly to place that spectacle on film. With still pictures we had poor luck; the problems which had defeated us with the Greater Bird vanquished us once more. But with movie film and with sound recordings we succeeded reasonably well.

Sicklebill Rattles Like Machine Gun

If the King gave us one bird of paradise feather for our caps, other species were just as generous. We photographed more than 100 species, most of them never filmed before, including the rare river duck, *Salvadorina*, and the little mountain parrot, *Psittaculla pulcherrima*, which we had discovered in 1950.

Scientists recognize 42 species of birds of paradise; in New Guinea there are 20 known ornamented species. Of the latter we observed 16 and filmed 12 in color.

Particularly entranding was Rheed's Sickle-bill Bird of Paradise (page 449). We found its mating tree 7,300 feet up Mount O-Mar and built near it a pandanus-thatched bivouac from which, one frigid morning, we watched Tomba perform.

From its perch the Sickelbill would loose a machine-gunlike burst of bass notes. Then, as the sound died away into the cathedral hush of the forest, the bird would begin to crum like a grouse, beating its wings against its sides and making loud, cracking reports which quite mystified us. It seemed impossible that wings alone could make such a noise.

Just as bizarre in a different way was Princess Stephanie's (page 449). This bird of paradise has a very long black tail, a jewel-like head, and a quiet mewing call that is uncannily feline. It displays in trees cloaked in moss and flamboyantly decorated with all manner of ferns, plants, and orchids.

Its dance, which we were among the first naturalists to see in its wild setting, began with the male slowly picking its way along a heavily festooned limb. Its tail, nearly two feet long, trailed among the orchids like a

Brown Crusts Excite Explorers' Appetites

[illegible]

[illegible]

[illegible]

458

Drainage Ditches Grove & Walled on Pattern Across Wadi Valley Sweep-pattern lands

[illegible]

Fingers of Fire Race Each Year Across the Grasslands of Central New Guinea

[illegible]

Speedlight Freezes a Neotropical Tree Frog in Motion

[illegible] **Giant Tree Frog** (*Phyllomedusa [illegible]*) [illegible]

Python's Golden Coils Make Native Mouths Water

[illegible] **Green Tree Python** [illegible]

Only Insects Need Fear Giant Frogmouth's Baleful Eye and Dreadful Jaws

[illegible] **Giant Frogmouth.** [illegible]

[illegible]

[illegible] **Birdwing** [illegible]

[illegible]

Kutumbang Kasapdes Rids Sesse and Sway in Public Assembly

Cockscombed Parrot Gloves with the Hues of a Cloud's Rainbow

[illegible] Cockscombed [illegible] Tree [illegible]

train. Its curved bill darted and nudged among the moss and flowers.

Suddenly, in a series of graceful leaps, it hopped to a bare limb about six inches in diameter and some 60 feet above the ground. With my 8-power glasses glued to my eyes, I watched it quickly flex its wings. It curved its tail inward, spread wide the tips of its two immense central plumes, and waved both tail and wings together in nervous but related cadence. For half a minute it held its wings cocked far behind its back, so that the wrists touched; thumped several times like the Greater bird; then, as abruptly as it had begun, relaxed, sat sedately for a little while, and flew away.

Fire Menaces Blue Bird's Home

From these ventures on Mount Hagen we turned for a quick two-week side trip to Mount Hagen in search of the elusive Ribbontail and the Golden-crowned Bowerbird, which in 1950 we had discovered and named *Archboldia sanfordi*, after our friend and sponsor, the late Dr. Leonard C. Sanford.

We learned much on Mount Hagen about hybridization of the long-tailed birds of paradise; we obtained some excellent photographs of the Wattled bird and Lorius's Bird of Paradise (page 452); but the Ribbontail and Golden-crowned gave us the slip.

Our disappointment was keen, but it was softened by the arrival at our base camp of young Henry Kaltenthaler, the botanist from Philadelphia. I had saved for him several particularly sticky assignments, including the photographing and recording of the Blue Bird of Paradise (page 441).

Henry shared my concern over the fate of this bird—*Paradisaea rudolphi*—threatened with extinction by native hunters and farmers. The most delicately beautiful and lucrative of birds of paradise, this creature has about it an aura of romance. Crown Prince Rudolph of Austria, for whom it is named, was the ill-fated hero of the tragic Mayerling story. The target of native collectors for a good half-century, the Blue bird is now gravely reduced in numbers. More serious still, deforestation is wiping out its very home.

As primitive man has pushed up from the coast into the interior, he has stripped the upper reaches of the Markham, Ramu, Sepik, and Wahgi valleys of their timber and left a sea of inflammable grass. When fire strikes, 30 foot palisades of flame sweep these upland meadows, charring the earth and driving bird and man into cramped gulches (page 459).

The Blue bird is all the more vulnerable in that it will not live higher than 6,500 feet, no matter how inviting the forest; its range stops there with the precision of a topographer's contour line. Yet the tide of destruction now laps to 7,200 feet in the Kaiser Range and up to 8,300 feet in the Chimbu gorge.

Result: Where thousands of Blue birds once flittered and danced in the forests, it is hard now to find a few inbred coveys backed into precipitous cul-de-sacs. One of the most forlorn memories I retain of the island is the spectacle of a male Blue bird I saw at Kaumbang, perched on a fire-blackened tree trunk in the heart of a burned-out wilderness.

Can anything be done to check these ravages? Our Australian member thought so. What is needed is a bird of paradise reservation, rather like Africa's Kruger National Park, in which primitive man can be taught to live side by side in harmony with those treasures of Nature that can be found in New Guinea alone. It would not be too difficult, Bob Doyle pointed out, to administer such an area through the government's district officers, men well-trained, fair, and much respected by the highlanders.

This project, however, is still but a gleam in a naturalist's eye; and in the shrinking domain still left to the Blue bird we found slim photographic pickings. We were luckier in our pursuit of the Magnificent Bird of Paradise (page 440).

We discovered, in fact, no fewer than five dance grounds of the Magnificent, all within two miles of our base camp at Kaip. Hitherto, Kumuk's courtship had been observed and fully described by only one white man—Dr. Austin L. Rand, of the American Museum, Richard Archbold Snow Mountain Expedition.*

Altogether, Kaltenthaler, Robert Doyle, and I spent 14 man-days in blinds close to the Magnificent's dance grounds before we were able to snare the bird's choreography on film. We felt well rewarded, however, for the antics of this strange bird with its police-whistle voice are among the most intriguing in the bird kingdom.

Dance of the Magnificent

Golden-naped, the Magnificent boasts a shining blood-red back patch and a chest shield of blackish green. For its dance it selects a tree of broom-handle size, deep in the forest and usually on a steep slope. Meticulously it clears the ground beneath the trunk and snips the leaves overhead to spotlight its arena with dramatic shafts of sunlight.

When all is ready, the male screeches his invitation to those whom it may concern and whirs down upon his sharply slanted stage. There he flexes his plumage and promenades slowly and with obvious pride up and down

* See "Unknown New Guinea," by Richard Archbold, NATIONAL GEOGRAPHIC MAGAZINE, March, 1941.

Tussed up Pickers Whet the Appetites of Dancing Warriors

[illegible]

Caprice Pygmies Hang as Scarecrows Above Piles of Food >

[illegible]

[illegible]

[illegible]

[illegible]

Stone-Age Craftsmen Split Casuarina Logs for a Wahgi River Suspension Bridge

[illegible]

[illegible] Like a [illegible] the [illegible] feathers.

[illegible] usually [illegible] the morning, with a [illegible] performance later in the day. [illegible]

Man's Work Is Never Done

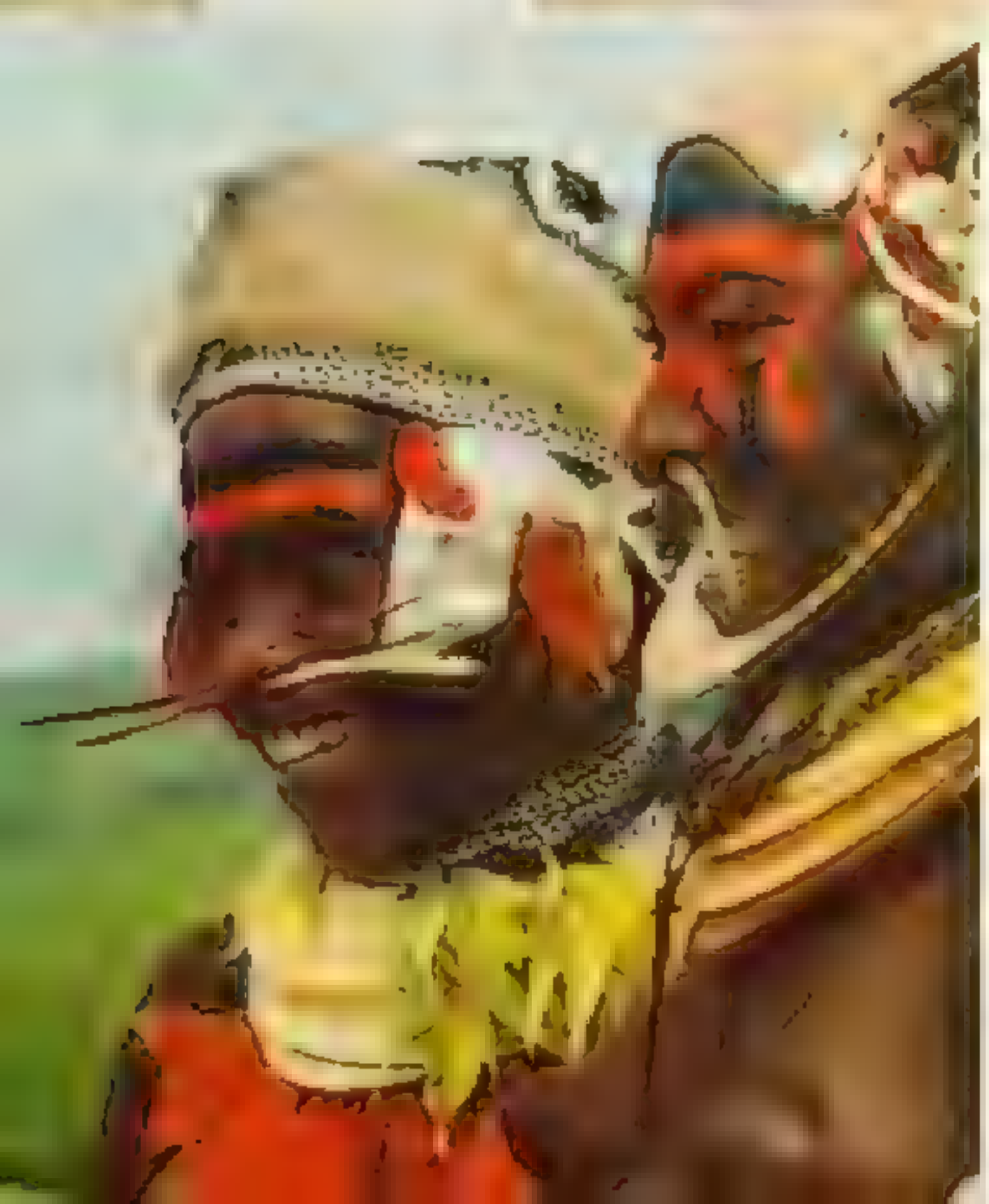
[illegible] of paradise, we took a long look at the courtship of the bowerbirds [illegible] the gardener. The males of these birds [illegible] specialized [illegible] to attract [illegible] bowers with colored objects—red, blue, and green [illegible] (pages 25, 45).

[illegible] though the [illegible] dominates the [illegible] example [illegible] of a parrot [illegible]

The gardener [illegible] forest [illegible] 8,000 [illegible] feet [illegible]

[illegible] ling serenade of hoarse ventriloquistic notes. He couples this concert with elaborate

Please Stay with Us!" Owl-winged Clouds Bring Gifts to the Departing Expedition



Reeds, Fetus and Shells Make Mustaches for Fellow Sex

[illegible]

A Sizzle Mountaineer Leans on His Ceremonial Spear

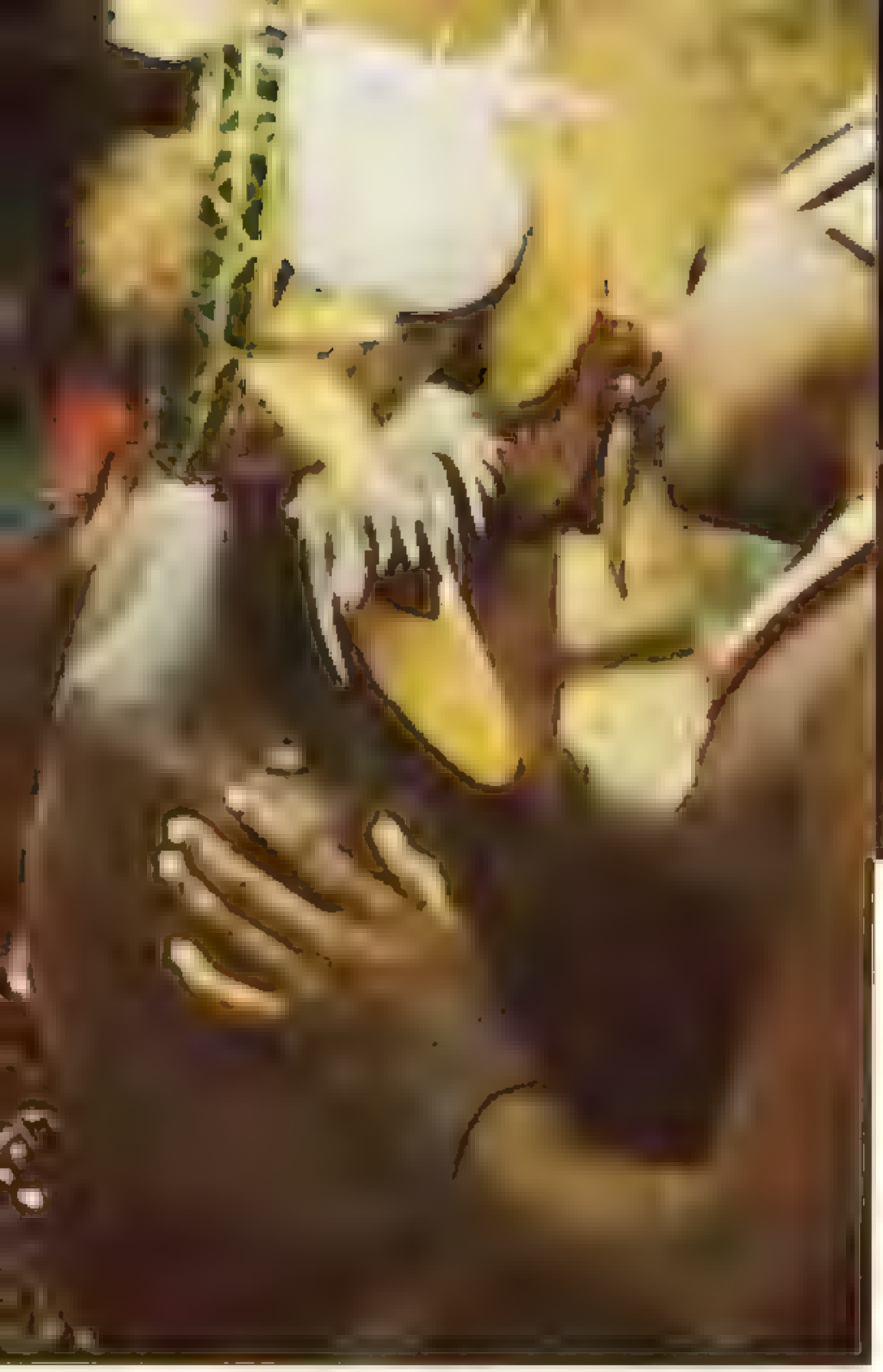
[illegible]

Bird-of-paradise Courtship Antics Find Their Counterpart in a Holiday Dance

Such bizarre and fascinating rituals and displays as those of birds-of-paradise seem to be not the product of a perfect world. Seeming least to be the [illegible] of Sears

Puzzle: Find the White Men. Three Expedition Members Mingle with the Crowd

[illegible]



Nose Meets Nose in Kaiserburg Circuit's Parlance of the Singsong

[illegible]

Brass-medal Chief Finds a Cheap Headdress More Alluring than Fine Paradise Plumes

[illegible]

Neck Shells Say, "It's Dearly if You Want a Wife"

[illegible]

gesticulation of his crest plumes, his motions as jittery as a mad wasps.

We went on to locate three display limbs of the Superb Bird of Paradise and to attempt photographs of its dance (page 443). But our days were growing short. One morning a runner broke into camp with news. "Dry fella master and misse belong em a fall down Ewis along cargo bus-along morningtime nuw." In brief our expedition leader, Armand Denis, and his wife had landed early that morning. They would join us shortly, and we would drop our ornithological survey for the filming of the Stone Age natives around us.

Denis appeared within a few days, and we set out for Katumbing, deep in the Kubor Range. We were, beyond doubt, a cosmopolitan crew—Armand, Michaela, Carmel, Bob Doyle, Kaltenthaler, Margaret and I. Father Rodnar, and Father John Nilles, a highly trained anthropologist, often joined us.

We were, in fact, a United Nations on the march, with Czechoslovakia, Belgium, France, Australia, Germany, Switzerland, and the United States represented. For most uses French and English sufficed, but in moments of strain we tended to lapse into pidgin. It can be most expressive.

Chief Bona Holds a Sing-sing

Our goal was an elaborate sing-sing to be held in the realm of a chief named Bona (opposite). The nearer we got to his village, the sounder appeared our news sources, for from the hills around natives were trickling down to the valley, painted and feathered, greased and spruced up for a party.

Chief Bona met us affably. No shrinking violet, he more nearly resembled a walking bird of paradise. We contributed some cloth and cellophane to his costume, and Margaret loaned his No. 1 wife a mirror—which he later snatched, giving the poor woman a couple of black eyes in exchange.

The preliminary daytime dances proved almost as fascinating as the sing-sing itself. From sunup to sundown three days in a row, platoons of natives pounded the dance arena with their feet, led by a chieftain who intoned a restless, repetitious chant which lead at the relentless madness of delirium (pages 472 and 481).

All day long the bare feet tramped and shuffled; the red, blue, and gold field of paradise plumes nodded and swayed; the pulsing drumbeats and incessant songs wove a hypnotic spell upon the dancers. Around them crowded spectators—women, girls, children, oldsters—gaping and remarking upon one brave's agility, another's grandeur.

Then came the "long-long"—the crazy man. Daubed with yellow mud and dead grass, he charged the assemblage like a frantic, twitching, contorted animal. Though he brandished an ax and spear, the children, screaming in delight, followed him in packs.

The long-long respected neither age nor sex nor status. He attacked all with the same seemingly murderous intention. Only the stooges who accompanied him appeared able, in the nick of time, to detect his weapons as he was about to brain or impale some hapless onlooker. His function was to drive away evil spirits so that the coming sing-sing might be fun for everyone.

Meanwhile, the dancers were preparing themselves for the evening performance. Hiding in the forest, they spent hours primping, painting their faces, and inserting their splendid plumes. One man would help another to make up, and, as the final touch, to don his toploftv, feathered headdress.

Our own boys came to us with requests for powder paint. This they applied with patience and artistry to the sides of their foreheads, between ear and eye. As we were shortly to realize, each boy intended to transfer this coloring by contact to the corresponding skin area of his "young fella Mary," like ink rolled off a printing pad.

It was 8 in the evening before we filed at last through an excited, jabbering throng into the long, low sing-sing house. Some 20 by 40 feet in size, this hut had along its sides and across its far end a foot-high dais of woven lamoniae grass.

Pig Grease Serves as Perfume

The darkness within was lightened somewhat by two small fires. As soon as our eyes had adjusted to the gloom, we saw two young girls kneeling across a narrow [illegible] other. Now others trooped silently in and took their places beside them, about two feet apart, tucking their string aprons modestly between their legs and sitting as immobile—and as shiny—as carved wooden statues.

In the flickering light they made an entrancing tableau. An occasional girl had a bamboo musical instrument slung from her neck (page 434). Others wore crowns of turtle shell, with triangular or diamond-shaped designs in front, while a few sported crowns of cowrie trimmed with golden kapul fur.

Many of the girls had bracelets of notched wood, most had arm bands of woven orchid fiber so tight they were more tourniquet than decoration. All, without exception, had topped their toilette with generous applications of treasured pig grease.

Presently, accompanied by a sudden rustling and chattering outside, a line of handsomely decorated men pushed through the hut's small door and circled the U-shaped formation of

[illegible]

[illegible]

[illegible]

Dancing Nose to Nose

[illegible]

Swaying Vine Bridges Leap Broad Rivers

limits to her bondage, and compensations. Since the courtship period is often long, the girl has some opportunity to see to it that the right man chooses her. If she is not happy after marriage, she can flee her husband and return to her old home, forfeiting only the original bride payment. And polygamy, while it forces her to share her husband, also forces her fellow wives to share the work.

Climax of the dance comes on the last day with a great feast. Pigs, corralled in a special stockade, admired and ogled with much smacking of lips, are now slaughtered by crashing blows on the forehead. Teams of men bleed them, store the medulle fat in gourds for adornment, cut the meat into chunks, and prepare the ground ovens (page 486).

Pork, à la Kubor

These ovens are hollowed from the earth itself or from tree trunks. Stones heated on cribs of burning logs are placed at the bottom and interspersed with meat, vegetables, and fragrant leaves. Then water from a bamboo tube, doused on the stones, sends up a head of steam. This is quickly and solidly capped by wet grass, broad leaves, and reeds, converting the oven into a primitive fireless cooker (pages 482, 483). In about an hour and a half the succulent feast is ready.

Distribution of the *piece de résistance* is far from casual. Where many chiefs have gathered, and hundreds or even thousands of pigs have been barbecued, the first chunks go to the headmen. These pass pieces to their lieutenants, often on the tip of an outthrust spear, and they in turn whip out unbelievably efficient bamboo knives and carve morsels for their serfs.

The gastronomic orgy may last for days. It sometimes proves fatally wasteful of the tribe's meat reserves. But at least no part of a pig goes unappreciated. Even the entrails are carefully braided and cooked, and the tusks, hoofs, and bones are preserved for decoration. Men keep the sanctums to wear, skewered, from ear and nose, in the curious faith that they act as aphrodisiacs. Women and old men string varicolored pistads together for necklaces.

Hemmed in by the unabilited hospitality of these Kubor tribesmen, we soon began to feel as if we were attending a college reunion held on a subway at the rush hour. But I made a point of learning as much as I could of the manufacture and the employment of the tool which gives this culture its historic stamp, the stone ax.

I had been impressed before with the speed and ease with which a good stone axman can split casuarina logs, even those a foot or more in diameter (page 488). The thickness of the blade, I could see, made it possible to strike the log very forcefully without getting it stuck in the wood. But I was unprepared for its sharpness. The blade is razor keen, and it holds its edge.

Stone for the best of the work axes is quarried from the Jimmi River and at a spot halfway up the Wahgi Valley toward Mount Hagen. But only the old people seem to know how to fashion them into blades.

Day after day, one of these old time craftsmen will sit by a puddle of water, grinding the stone upon a big, well-worn sandstone. The blade scrapes forward, turns slightly in the grinder's hand, clacks against the stone, then scrapes back upon its other edge with a hollow, grating sound. It takes almost three months of constant toil to make a good stone ax, and another week to complete a wooden stock and handle for it (page 480).

Other stone implements are not common in the Kubors, but they can still be found—clubs, knives, emblems, "money," pestles, mortars, even carved bowls. They are clearly the work of another age. Say the natives, "Em belong bilong ra; me fellow no savvy."

It is easier for the natives to make the elaborate ceremonial axes, with their flat, slatelike blades of softer, volcanic chert (page 487). It will become easier still for them to acquire the steel ax of the white man as he visits them with increasing frequency.

The Hollow Echo of Prehistory

I thought often of that as we turned back toward Kup for our outward flight to civilization. Following steep, narrow trails we occasionally crossed a little valley, and from some remote pocket in the hills there would drift down the old, ancestral sound of stone upon stone, the clack and scrape, endlessly repeated, of the axmaker.

I hear it yet in my imagination. But it will not be many years before the source of this frail, fugitive echo will itself be stilled. Then, perhaps, over the whole habitable globe a music that has been played by primitive man since the dawn of time will resound no more, and in those few of us who heard it last, the memory will fade.

Dancers Flourish a Sacred Shield to Repel the Evil Power of Pigs

Tribal lore associates the ghosts of pigs with the souls of departed relatives. To placate slaughtered persons, the people make gaudy, symbolic wooden shields, and carve them during butcherings in graveyards. Once used, the shields are left to rot in a forest. There the sorcerers' taboos guard them against further use. People believe that if this ritual is not faithfully carried out, their ancestors will return to haunt them.

Butchers Prepare a Feast; Razor-sharp Bamboo Knives Stash Pork

[illegible]

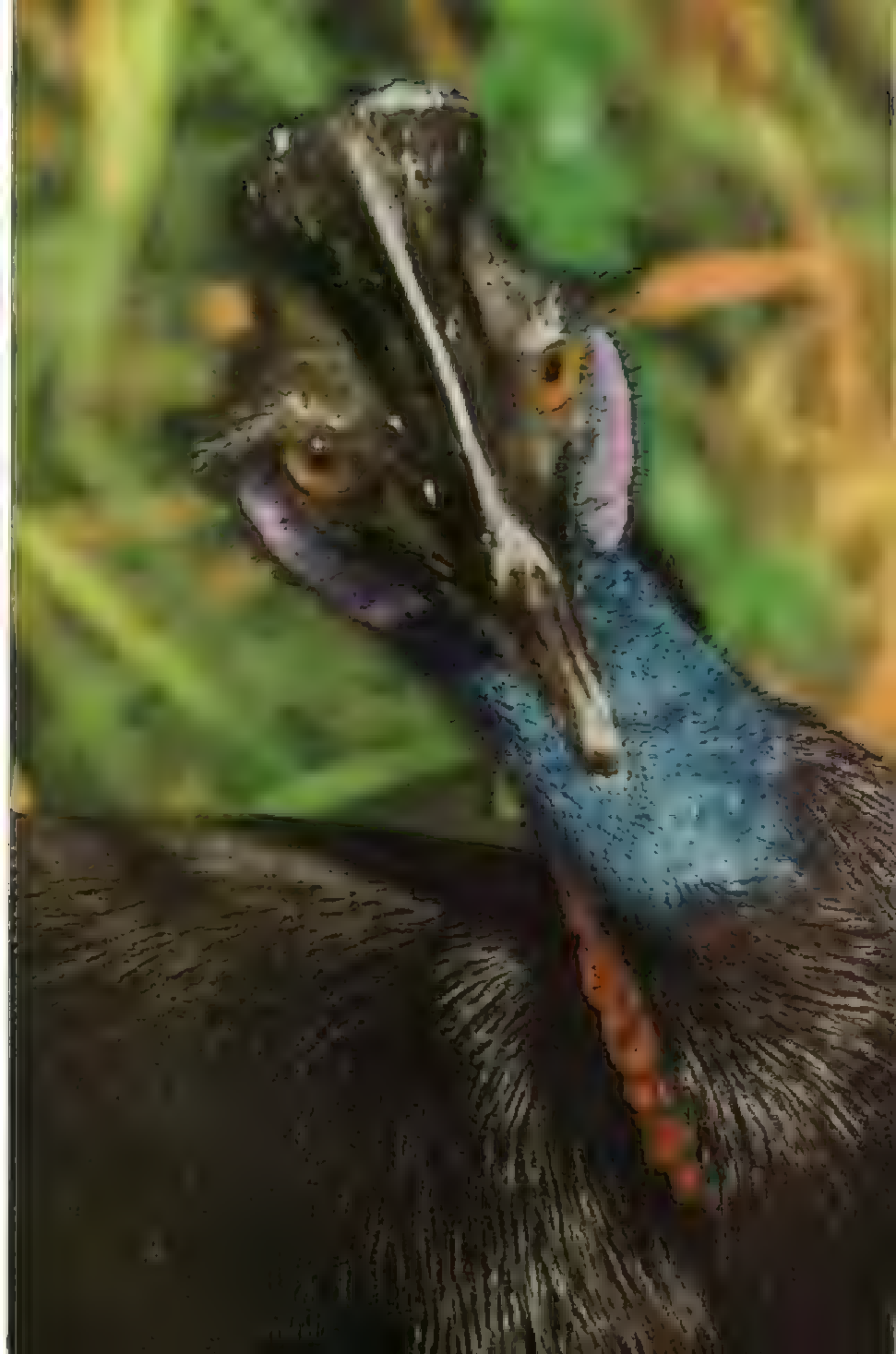
[illegible]

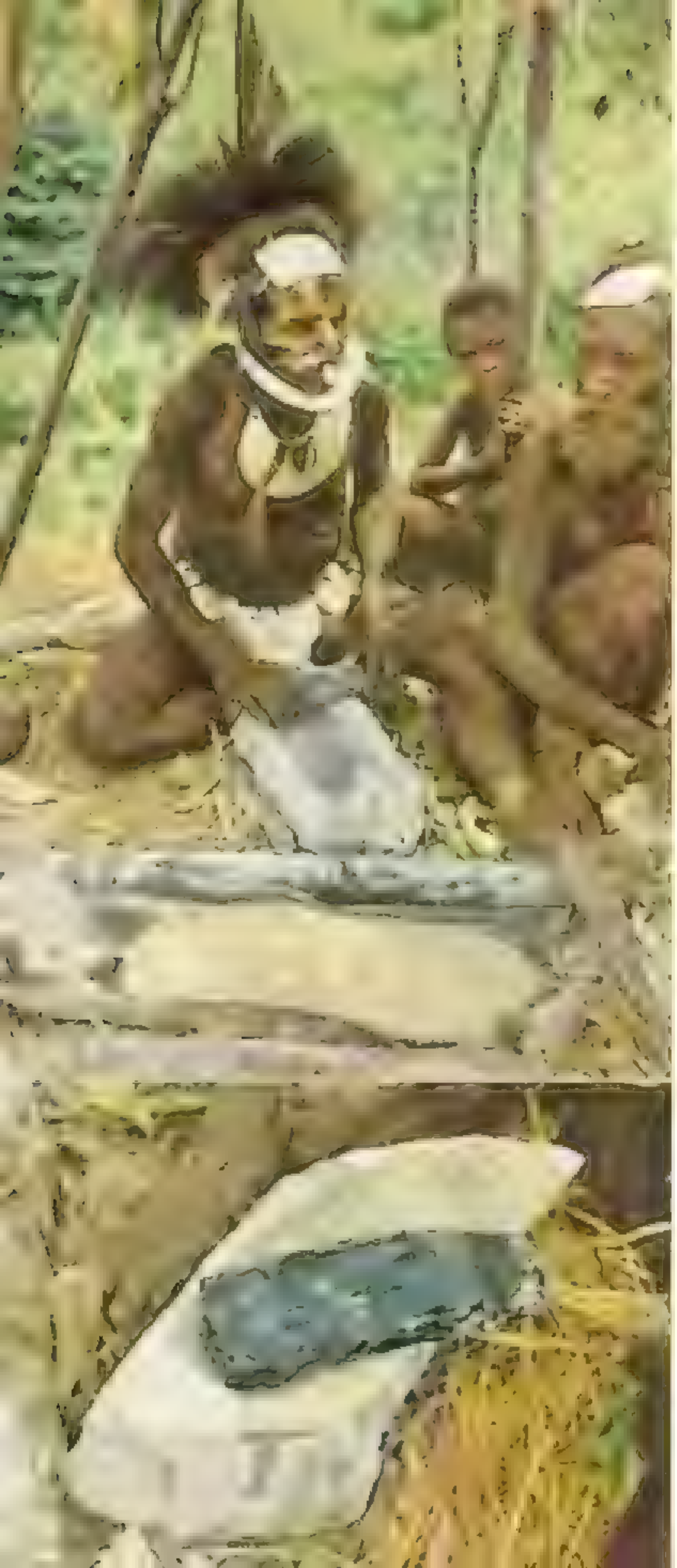
Starkical Owl Takes Flight; Possum Uses Tail Like a Monkey

[illegible] **Hankook** [illegible] **Carole's Ring-tailed Possum** [illegible]

Feral Cheetahs in a Kolleen's Eye; the Village Cassowary

[illegible] **Brandt's Mountain Cassowary** [illegible]





« Only a Few Oldsters Retain the Secret of Making Stone Axes

Missing Pieces Assist » Human Culture

Palm Nuts Click Like Castanets When a Warrior Walks or Dances

Man Competes with Parrot in Plantain-eat Exhibition

Three Months on an Arctic Ice Island

Floating on a Glacial Fragment, U. S. Air Force Scientists Probe Fog-and-Ice-Wrapped Mysteries Within 100 Miles of the Pole

By Joseph O. Fletcher

Lieutenant Colonel, United States Air Force

Hight over the cold vast Arctic Ocean the radar officer in a converted B-29 Superfortress droning toward the North Pole stared unbelievingly into his scope. There, outlined against the characteristic pattern of the ice pack, was radar's picture of land—an island rising from deep sea where no land should be.

Quickly the airman called the plane commander on the interphone and verified the position as 300 miles north of Point Barrow, Alaska. He sketched the discovery on his chart and marked the date—August 14, 1946.

I think this marked chart and accompanying report, turned in by the 72d Photo Reconnaissance Squadron at Ladd Air Force Base, Fairbanks, Alaska, should rank with the important documents of Arctic exploration.

This young American had not discovered new land, as he believed. But he had provided a key which was to unlock one of the Far North's old mysteries and give his country a valuable base closer to the Pole than men had ever lived in comfort and safety.

For me personally, that key opened the door to a white world of scientific discovery and adventure. I was first commander of America's northernmost outpost, and for a quarter of a year lived 150 miles and less from the very top of the world.

"Land" That Moves with Arctic Winds

After the B-29's return other airmen poured over these northern wastes to confirm the existence of what was now termed Target X. They looked down on the robin's-egg blue of lakes, the steely glint of rushing streams, and a coast 20 to 40 feet high rising from the tumbled sea ice of the polar pack.

Rocks, they reported, jutted from a wind-swept plain. Patches of earth showed darkly. In vain did the pack, destroyer of explorers' ships, attack the island's shores. Giant fragments piled under coastal cliffs attested the strength of this 200-square-mile mass.

But, mysteriously, it was several miles from where it had first been plotted. There could be only one answer. Target X was a drifting island of ice!

"Ptarmigan" flights—planes sent regularly over the North Pole by Air Weather Service to observe conditions there—were alerted to watch for more ice islands. They found two other large ones drifting far from land in the central Arctic basin. Canadian flyers later discovered some 40 smaller fragments in the channels of their country's Arctic archipelago.

Gentle parallel swells, or waves of ice, from a few inches to 15 feet high and from 800 to 1,000 feet apart, crossed the islands' relatively flat surfaces. Impervious to the battering of the pack suggested frozen fresh water, harder and stronger than salt ice. Thicknesses of 200 feet or more, 20 times that of the sea ice, were deduced from their height above sea level.

Peary's Explorations Give a Clue

Somewhere along an Arctic shore a giant glacier must be spawning these immensities. But where was such a glacier? Narratives of early explorers supplied an important clue.

Lt. Pelham Aldrich, member of the British Arctic expedition headed by Sir George Nares in 1875-6, and Rear Adm. Robert E. Peary 30 years later, had seen a unique ice foot, or shelf, fast to Ellesmere Island's north shore and extending far seaward. This was apparently a glacial remnant, part of the prehistoric ice that once covered Ellesmere and the surrounding sea as an icecap now covers the interior of Greenland (page 494).

A puzzled Peary wrote a description of the shelf that perfectly fits today's ice islands. Later we were to land on Ellesmere ourselves, and, by comparing carings, match islands to the glacial shelf still extending 10 miles to sea in places.

It is thus still true that there are no icebergs in the Arctic Ocean, bergs as we know them in the Atlantic break from "live," moving glaciers when they reach the sea. Arctic ice islands, much older and larger, have split off from the vast Ellesmere shelf. The process must have been rapid since the turn of the century, for Peary described a far more extensive ice foot than now exists—further evidence of a steady warming in the Arctic.

From a geographer's point of view the most interesting result of recent ice island studies is a possible solution to mysteries of "new lands" never seen again after "discovery." Crocker Land, sighted by Peary in 1906 and marked on Arctic maps until Comdr. Donald B. MacMillan in 1914 disproved its existence, may well have been an ice island.

Fletcher's Ice Island, a United States Air Force Station, Drifts Near the North Pole

[illegible] in ancient glaciers, [illegible] dash camp and make a [illegible] this parked C-47 had [illegible] which discovered [illegible] the top of [illegible] at Fletcher's Ice where [illegible] of weather, ocean, and ice. Two tracked vehicles dot the trail.

[illegible] President's Land, [illegible] Land. Takpuk Island certainly [illegible] its discoverers, an Eskimo Takpuk, and the crew of his sloop, landed there in [illegible] photographed it, and left still thinking [illegible] Land, but their photographs show an ice island.

No discredit reflects upon the brave and experienced Arctic explorers of another day. Members of the Air Force, including that radar-man, are ready that ice islands closely resemble land, particularly when the viewer [illegible] on a summer day.

Air Age Overcomes Ice Barrier

Discovery history [illegible] Air Force missions or [illegible] tomorrow or other. What use could be made of ice islands in the Arctic, repository of vital secrets of ocean and weather?

For more than 2,000 years the unpredictable pack had denied man more than brief and hazardous visits to its domain. To this day, no ship can smash through it at will. Some have managed to buck and thread a way into the ice in summer. Winter locked them fast; the fortunate ones came out again, but many fine vessels perished.

Lt. Comdr. George Washington De Long's *Jeannette* was crushed in 1881, a mishap which cost the gallant naval officer his life. In the same year Leigh Smith, an intrepid Arctic explorer, lost *Eira*, a specially built steam yacht, which sank in two hours. Some seven years later *Tegetthoff*, under Lts. Karl Weyprecht and Julius Payer of the Austrian military [illegible], was crushed and abandoned.

The [illegible] have left many ships in the Arctic, among them the ill-fated Sir John [illegible] *Erebus* and *Terror*. Other casualties [illegible] Kaiser Wilhelm Stef[illegible] 1918, and the Russian [illegible] smashed in 1933.

Airmen Hundled Against Minus 20° Cold Serves Their Snowbound Dwellings in the Polar Sea

[illegible]

Sledges [illegible] dogs, but these were little. The men also first came to air and on some patrolling for local escape shooting and [illegible] instruments. Just here [illegible] to the [illegible] were the pilots.

[illegible] Lt. Commander [illegible] was [illegible] Air Weather Section [illegible] Air Meteorologist and Department Forecaster. I was [illegible] in charge.

A [illegible] was selection of the island. Of the three [illegible] Lt. Commander [illegible] had [illegible] to Greenland. T-2 [illegible] the geographical Pole, [illegible] (page 497 and page 498)

We [illegible] T-3 [illegible] T-1 and T-2 [illegible] of surface [illegible] By the time we were ready, it [illegible] the Pole [illegible] of the [illegible] as long as the [illegible] and [illegible] also to weather [illegible]

Expeditions kept us at Ladd Field for [illegible] January and February. Then we flew to Thule, in Greenland, an Air Force base [illegible] supplies were [illegible] from Alaska.

Scouting an Icy Future Home

On March [illegible] we [illegible] "[illegible]" [illegible] for three months. A flight of 175 miles [illegible] over [illegible] 78° N. Lat. 15° W. [illegible] [illegible] fuel [illegible]

Only [illegible] the [illegible] allowed [illegible] the [illegible] for [illegible] landing. We [illegible] weight [illegible] long [illegible] [illegible] work [illegible] into the [illegible] T-3

Saw and Shovel Build a House of Snow Blocks to Shut Out Icy Winds

[illegible] Fletcher's Island soldiers worked without shelter or [illegible]. Snow was [illegible] and [illegible] made [illegible]. Wind [illegible] the fire. [illegible] house in the rear. Snowshoes [illegible]

Our firsthand view of this enormous slab of glacier majestically grinding its way over the roof of the world gave substance to hours of briefing, discussing, and training. An enthusiastic party returned to Thule. Once more we reviewed our plan.

Clear weather and good light would be essential for the landing. With Maj. Gordon F. Bradburn, who would command the flight aircraft we planned to use, I consulted weather forecast and air almanac. On March 19 we would go, just before the spring solstice when the sun would again return to the Arctic from its long winter sojourn in more southerly latitudes.

At 8 o'clock of the appointed morning the [illegible] planes thundered off the runway into the green air. We were on our way at last.

Only our C-47 was to land. Two of the three men it would leave on the ice were working [illegible] Maj. Marion E. Kinsear, [illegible] the 10th Air Rescue Squadron as "Ice-pack Mike" because of his prowess as an Arctic [illegible] dubbed as second navigator. I was [illegible] operator. Dr. Kaare Rodahl, physician and research physiologist from the Air Force's Arctic Aeromedical Laboratory at Ladd, had no flying duties.

General Flies as Copilot

Capt. Lewis Erhart flew the ship. Characteristically, Maj. Gen. William O. Old, head of the Alaskan Air Command, had decreed that he would allow no one under his orders to take risks he would not take himself; he flew with us as copilot.

Four two fourteen-engined planes (C-54s), with Capt. Edmund G. Smith at the controls, were to fly ahead. "Smitty," as we called this son of the South, would find T-3, then

guide us to it with high-frequency radio homing devices. We were to set down for gasoline carbed earlier on the sea ice near Cape Sheridan, Ellesmere Island. On the way we would fly over Cape Sabine, where 15 members of Maj. Gen. A. W. Greely's Lady Franklin Bay Expedition died in 1884.

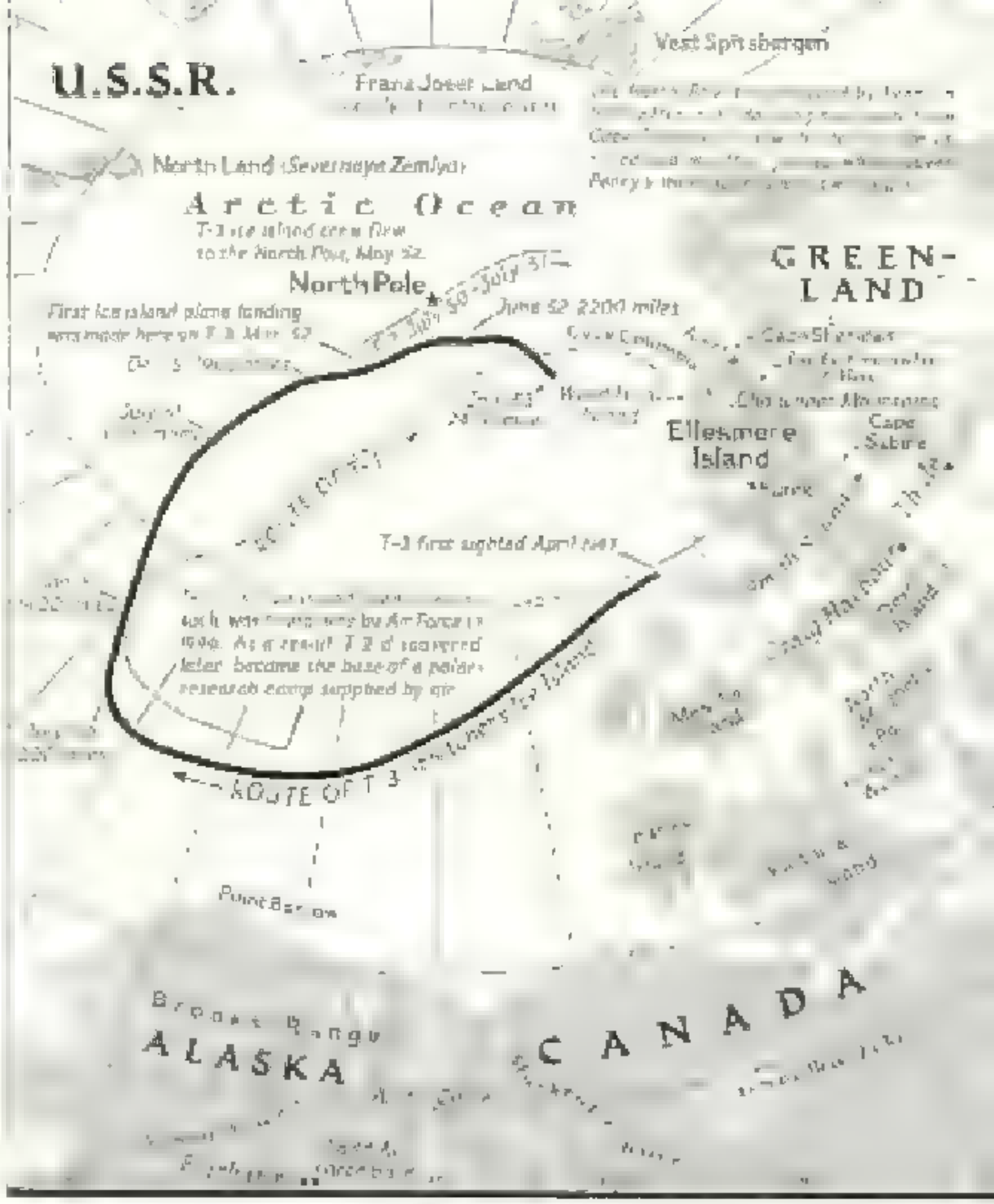
High aloft, the wind blew strong out of the north. Dodging it, we went out very low. Already difficult navigational problems were made worse by clouds and haze blotting out the sun on the horizon. The twilight glow dimmed the stars we might have used for celestial reference. Navigation became mostly dead reckoning.

Island Lost in Arctic Twilight

It surprised no one, but nevertheless added to the mounting tension, when Smith was unable immediately to find T-3. Then, strangely incongruous in these parts, came an Arkansas drawl in my earphones, "Over T-3," said Smith.

"Good!" broke in Bradburn from the other C-54. "How does it look?"

"Cold," reported Smith, "and there's nobody there."



Ellesmere Mothers the North's Ghostly Ice Islands

Breaking from Ellesmere's ice foot, remnant of an ancient glacier (page 444), these huge masses came adrift in the polar basin since 1946. T-1, the initial discovery, swept a 1,100-mile course, then ran aground off Ellesmere. T-2 directly crossed the Pole. Traveling about two miles a day, T-3 (Fletcher's Ice Island) has backed and filled, curved and looped along a 2,400-mile path. The only island manned, T-3 saw its first airborne visitors in 1952. They came from Thule, Air Force base in Greenland.

In less than two hours that lack was remedied, and routinely enough. First, smoke bombs out the door to get wind direction. Next, circles at 300 feet while Eckhart picked his spot. Then came the sensation of sudden slowing that showed flaps were down, a few tentative touches with the skis to test the snow, and finally the soft thud of landing.

For a moment after the ship skidded to a stop no one moved, affected by the realization that at last we had reached our objective. Then we piled out in an eager rush.

My first impression was of cold striking with chilling force even though the wind was a mere 10 miles an hour. We estimated the temperature to be minus 50° F. My next reaction was [illegible] to order us back into the air if our survival appeared doubtful.

He looked around and gently shook his head. "I don't see how anybody could live here. Better get out—if we can," he said.

Following him back along the plane's tracks, I agreed that landing in the snow with heavy aircraft arranging equipment would be difficult, but pointed out we had made plans for dropping almost everything by parachute.

"We'd feel awfully bad to leave now," I said to the general.

"How do you know the others want to stay?"

I put into words the anxious looks my companions had given me when we walked off over the snow. "They've already told me."

* Major General Greely, leader of the expedition to the farthest-north point reached up to that time, 83° 24', later became one of the founders and a life trustee of the National Geographic Society.

Canada Collects No Real-estate Taxes on Desolate Ellesmere

[illegible]

[illegible]

Winter Locks T-3 in the Ice Pack's Frozen Grip

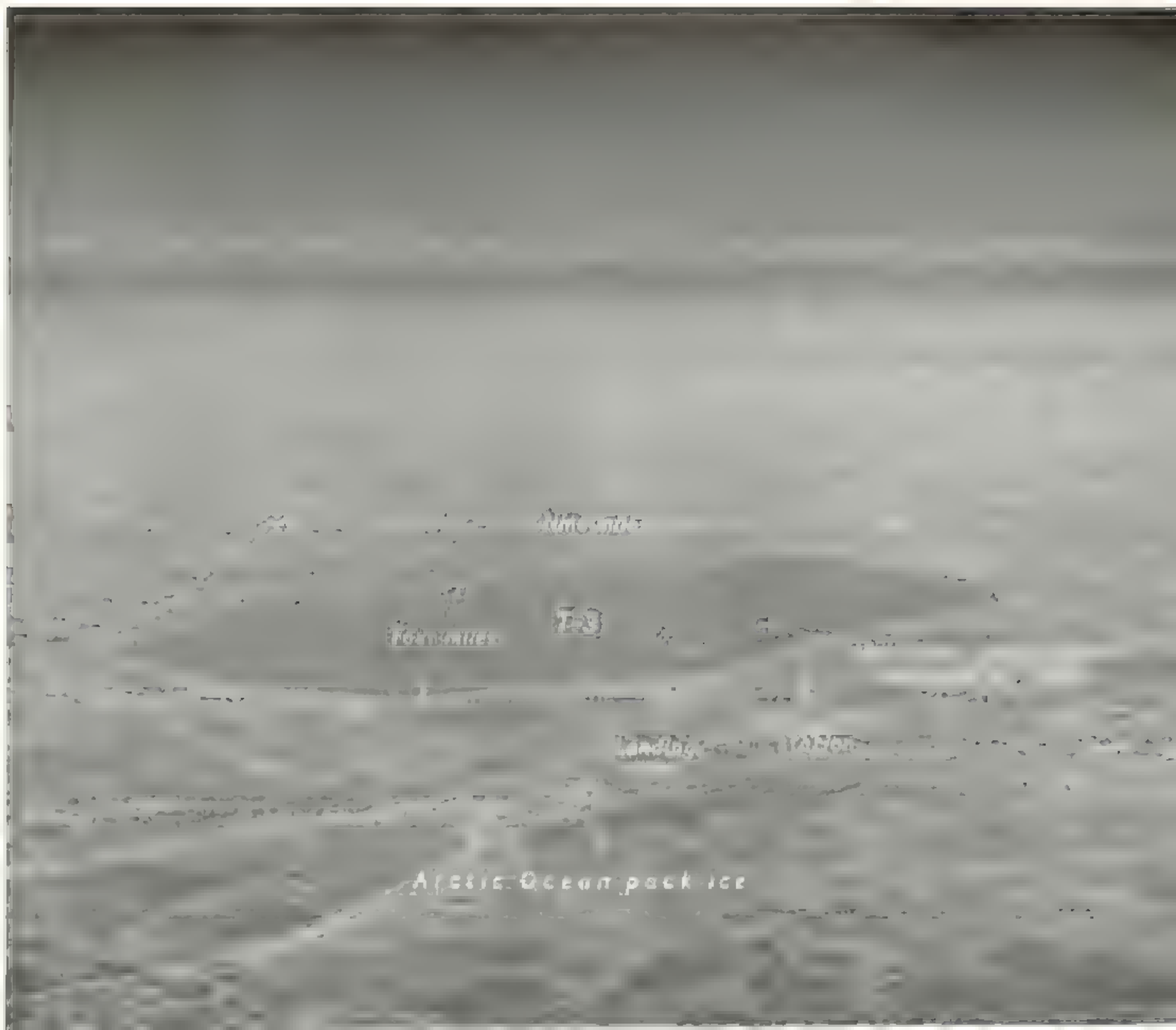
[illegible]

[illegible]

[illegible] summer thaws erode but a fraction of its bulk, about eight-[illegible] Consequently, the island could [illegible] indefinitely unless it dipped into a warmer clime. Now T-3 seems to be starting its second [illegible]

[illegible] easy to pick out from the air. It [illegible]

U.S. Air Force Official

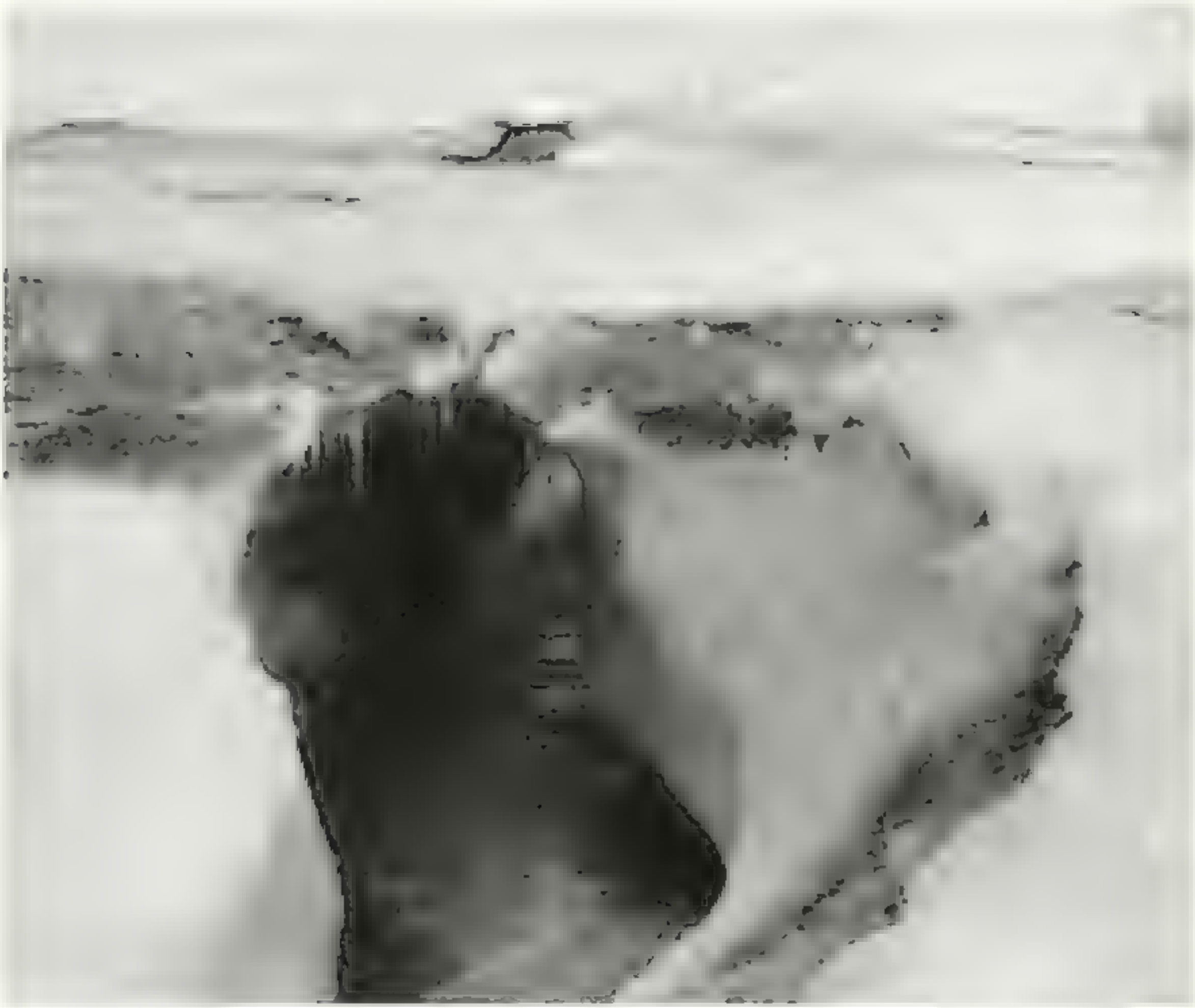


Food and Fuel Drop Like Manna out of the Sky

[illegible]

T-2's Ice Face Is Wrinkled with Age

[illegible]



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River, Lake and Boulders Hegaten the Illusion that Fletcher's Ice Rests on Land

"All right," capitulated the general. "I guess if we had to, we could get you out somehow."

[illegible] were set up in the snow to mark a drop zone; on [illegible] passed for the [illegible] plane [illegible] maneuvered the [illegible] position. A final goose-bump it was off hurled into the [illegible] by four JATO (jet-assisted take-off) units. The sound of engines died in the distance. We three were alone.

Knowing that rugged arctic gales could shriek down with [illegible] warning, we [illegible] about [illegible] going in. Our [illegible] was a double-walled mountain tent, regulation government issue with tarpaulin floor. We banked the outside with snow.

Inside, we wriggled into [illegible] which we drew [illegible] sleeping [illegible], [illegible] our arms free.

Not until then did we start dinner. Like many Arctic travelers before us, we had trouble lighting the primus stove, partly because of our cold clumsiness and partly because the kerosene fuel showed a [illegible]. However, we [illegible] meal of frozen sausages, [illegible] and [illegible] chocolate.

Already [illegible] we drifted after dinner into sleep interrupted by sharp [illegible] like the popping of pistol fire, caused by the contraction in the extreme cold. We found that the heating [illegible] shut down as soon as the weather became [illegible].

Exploration began in earnest the next morning. The first discovery was that the drifted snow, of sandlike consistency, was a few inches deep [illegible] three feet in the [illegible]. Feet and ankle in [illegible] walks went through the surface crust, leaving [illegible]. We put on snowshoes [illegible] and a portable two-[illegible] radio, we headed for the sea ice at [illegible]. It took us two hours to cover [illegible] with frequent [illegible] to know from [illegible] and chicken [illegible] much [illegible] than [illegible] we had [illegible].

[illegible] the [illegible] we had taken [illegible] preparing [illegible] with [illegible] gas field. [illegible] control [illegible] crew that all was well on [illegible].

Frozen Breath Whitens Mustache and Beard

Mr. Marion [illegible], cook of Fletcher's Island's [illegible] [illegible]

Weather Planes Keep in Touch

This and later contacts with Flamingo planes brought us more than official messages. Dr. Rodahl received word from the sky that he had become a father. The four [illegible] scientist rummaged in his [illegible] and came up with the traditional [illegible].

For me in particular, [illegible] warmth in the sight of sturdy ships overhead and the sound of friendly voices on the radiophone. I had commanded this fine Arctic flying unit, the 58th Strategic Reconnaissance Squadron (Weather), for the two years

preceding my assignment to Project Icicle, and I knew every man in the squadron.

One of the pilots who regularly looked down on us, Maj. James W. Soderberg, had been my operations officer and my next-door neighbor at Eielson Air Force Base near Fairbanks. Never had I found him wanting; it was good to know he was still near, ready and able to help if help was needed.

As the ship overhead passed on, we continued our first ice island exploration. From the vantage point of a 40-foot ice peak on the shore, we looked out over the pack. It was a wild panorama—grotesque white ridges as far as the eye could see, one large lead of open water in the distance, immense blocks of ice lying in 30-foot-high masses.

"How would you like to drive a dog team over that?" I asked Kaare and Mike, thinking of the indomitable explorers of yesteryear.

"I'll take the airplane," said Rodahl.

Sight of the frigid chaos, in which anything wearing a white fur coat could easily escape detection, brought up the subject of polar bears. Dr. Fridtjof Nansen had met them above 84° N., and some of his companions had been deliberately attacked by a hungry bear.

Dr. Nansen commanded the specially built Norwegian ship *Fram*, purposely frozen into the pack toward the end of the last century. She drifted across the Arctic, becoming the outstanding exception to the rule that ships cannot survive the grip of the pack.

During our stay on the island we never saw a bear, nor a fox, whale, seal, or other living creature larger than a sea bird. But a few days after our first venture afield, we did find large bear tracks and signs of fox close beside our trail. Such evidence is soon drifted over by wind-driven snow.

In the warmer months small crustacean shrimp were abundant in leads near the island. Those who manned T-3 after my return to the United States in June found the remains of what appeared to be a lemming, and of fish on the glacial surface after the snow and some six inches of island itself had melted off.

Arctic "Whiteout" Shrouds Island

A pair of caribou horns emerged from the ice one warm day. Possibly the caribou was still frozen below them, but excavation was postponed until the summer of 1953 (page 303).

Many explorations followed the first one. Soon we met the Arctic "whiteout." Wrote Admiral Peary, describing the conquest of the Pole in the NATIONAL GEOGRAPHIC MAGAZINE for October, 1909:

". . . we experienced that condition, frequent over these ice fields, of a hazy atmosphere in which the light is equal everywhere. All relief is destroyed, and it is impossible to see for any distance."

It was an apt description. We found that when thick clouds obscured the sun no shadows were cast to reveal hummocks, drifts, and depressions in the snow. Everywhere there was only whiteness.

We stumbled into drifts and tumbled into holes. In the whiteout, a man out of sight of camp would be hopelessly lost without a compass. Small, dark objects were visible at a surprising distance and often appeared many times their actual size.

Population Jumps Two-thirds

April 1, thirteen days after our landing, was a red-letter day. The C-47 returned, carrying geophysicist Albert P. Crary, of the Air Force Cambridge Research Center, and Capt. Paul L. Green, communications officer. They brought our permanent radio station, the first of the weather and geophysical equipment, and replenishments for the larder.

Camp by now consisted of two 12-foot square tarpaulin-roofed huts of snow blocks and two tents. The second tent became our kitchen, complete with oil stove. One hut was a storeroom. The other, connected to the first by a tunnel, was intended for emergency shelter, but we moved into it bag and baggage the day after the first real storm.

The island acquired a name. Newcomers carried written orders from Alaskan Air Command sending them to "Fletcher's Ice Island." Crary had a neatly lettered sign to go over the door to headquarters.

We said a fond good-by to Dr. Rodahl and a few days later, with the arrival of Robert D. Cotell and First Lt. Robert R. Dunner, we saw Mike Brinegar off. Officially, the scouting party had been replaced with a permanent one—Crary, his assistant Cotell, Green, Dunner, and me.

During the next three months we worked long and hard. Many with whom I have talked since my return to the United States were skeptical when I told them we never found time heavy on our hands, were never bored. There was always plenty of work to do; and we never had time to become irritated with one another's constant proximity.

Rare disbelief often greets my assertion that after the first few weeks we were very comfortable. Our supplies—clothing, equipment, food—were the best. Our permanent station had everything we needed.

One of three insulated huts 16 feet square, flown to the island in sections and assembled on hard blue ice scraped clean of snow, became a combined kitchen and assembly room. It had a modern oil range, washing machine with dryer, fluorescent lights, electric food

Americans Stand on the North Pole for the Second Time in History

The Air Force party duplicates in a day the [illegible] The men flew 700 miles from a Fletcher [illegible] 5 pioneers are [illegible] Dr. William P. Hemstead [illegible] their plane.

mixer, phonograph, and comfortable furniture.

A second hut was sleeping quarters, the third, our all-important laboratory. In it were [illegible] radio, and geophysical equipment. Captain Green broadcast important weather data every six hours.

Between broadcasts he talked to radio hams all over the world. Offhand I can recall conversations with people in Japan, Scotland and Nairobi, Kenya. When conditions were good, amateurs in the United States helped complete telephone calls to our families.

Scientific instruments were calibrated and repaired at a compact workbench in a corner. Instruments within and without the shack measured atmospheric pressure, temperature, humidity, and wind velocities. We shot the sun regularly for [illegible] of terrestrial position so we could detect the movement of our island and the pack.

Because of the rotation of the earth, our frozen home appeared to drift about [illegible] to the right of wind direction, and at about 1/45 of the wind's speed. Main cause of the island's movement is wind; consequently it was an erratic traveler, but it averaged one and a half or two miles a day.

We found no clear trace of sea currents except those induced near the surface by the wind.

The little known Arctic Ocean on which we floated was the special province of Crary and

Air Explorers Cross Admiral Peary's Sledge Trail on Ellesmere Island

[illegible]

[illegible] set up [illegible] equipment [illegible]. The [illegible] are [illegible] various depths.

[illegible] we moved onto the island [illegible]. Although the bottom was [illegible] flat [illegible] 12,000 feet down [illegible] 7,000 feet of the surface.

Submarine Grand Canyon Discovered

[illegible] which was more than [illegible] feet deep. Samples of the bottom were brought up [illegible] depths.

The [illegible] It was [illegible] like a pocket of [illegible] water trapped [illegible].

During the [illegible].

Two of the [illegible]. They were [illegible] which we [illegible] set up [illegible] generating plant. [illegible] the generator kept the [illegible] engine [illegible].

[illegible] Out of the polar sea [illegible] which is devoted [illegible] research. This had engine trouble; its crew [illegible] new engine was flown [illegible] Carrier Squadron.

Summer Thaws Bare a Caribou's Antlers.

Fletcher's Cliffs Tower above the Ice Pack

[illegible]

[illegible] Mission sailed for the North Pole. This was an Air Force mission, and several of us from Fletcher's Ice Island went along. It was [illegible] primarily to the [illegible] and our floating base, with all its [illegible] lies and contents, lay [illegible] about 200 miles from the Pole [illegible].

We flew to [illegible] Alert, [illegible] Canada's [illegible] shelf. [illegible] Cape Columbia [illegible] markers of some sort and a crude [illegible] opposite. Landing, we found a signpost left by a Peary party in 1909 and sled runners projecting from a cairn built in 1919 by the Danish explorer Capt. Godfred Hansen.

In June the temperature on the ice island climbed to freezing and above. Bright blue lakes formed in hollows. Draining them, small streams rushed pell-mell to the sea, cutting tunnels and miniature canyons (page 49).

Snow-block walls melted but were replaced with empty fuel drums from a steadily growing collection. Small, dark objects lying on the ice sank beneath the surface. Instead of reflecting the sun's heat back into the atmosphere, as did the ice on which they lay, they absorbed it. Thus warmed, they melted the ice beneath them and dropped into tunnels of their own making.

This familiar phenomenon came in handy for playing jokes on visitors. We [illegible] were ice worm burrows. To lend [illegible] to the tale, we froze spaghetti into ice cubes served at table and [illegible] gave fussy to our aghast visitors [illegible] careless kitchen inspection.

Late in June [illegible] orders for Cotell, Green,

and me to leave. We went reluctantly, replaced by an augmented crew with still more equipment for probing sea, ice, and sky.

As this is written, Fletcher's Ice Island is still inhabited, and valuable work goes on. Ways in which temperatures of ice and atmosphere affect each other are being studied. Gauges set between salt-water ice and island measure the terrific pressure of the pack.

Weather information is most important, and broadcasts continue every six hours. Instruments now go far aloft on balloons. Equipment used to track their course was successfully flown in.

Clues to Mysterious Jet Stream

In Washington, D. C., Air Weather Service meteorologists search reports from Fletcher's Island for clues to the general circulation of the earth's atmosphere. Such information may help to explain the existence of the jet stream, the mysterious, undulating current of air that travels at high speed far above the earth. Knowledge of jet-stream positions often enables airmen to ride tail winds, cutting hours from long trips.

Generally our island home proved itself directionally stable. It had no recognizable bow or stern, of course, but its inhabitants aligned it with true north by means of markers arbitrarily established on the ice.

Twice, for unknown reasons, the island made partial rotations in a clockwise direction, turning the first time through 50° and the second through 80°. These rotations were slow, the 80° turn requiring nearly a month.

A sensitive bubble level, reading to within 1/10 of a second of arc, showed that the island tilted a small, varying amount. This was ascribed primarily to wind, but sometimes the levels were thrown into confusion by localized surface upheavals caused apparently by internal pressures.

Also products of pressures from within the island mass were strange "ice humps." These dome-like protuberances occurred on the tops of ridges near the shores and were occasionally three feet high.

Coring bits were driven down 52 feet. Within this distance 54 distinct layers of dirt were encountered. Mostly mineral matter, they also contained a few bits of twigs and leaves.

The presence of the dirt was accounted for in several ways. Boulders and large earth mounds were terminal moraines left by tongues of glaciers which thrust out on the Ellesmere-fast shelf, then retreated. Summer streams coursing down from the land left silt and small pebbles. Some fine layers may have arrived as atmospheric dust.

The boulders were conspicuous features of the landscape. Some were big, weighing many tons and measuring as much as 10 feet in diameter. They stood ranged in a rough row, as if a careless giant had tried to build a stone wall. A few of the smaller ones were shipped to the United States for study.

A reliable estimate of the island's thickness was made. Charges of TNT sent shock waves, which travel at known speeds, through the ice. Measuring the elapsed time, Crary and Colell reported that our camp rested on a 150-foot-thick block of ice, a cold, inert mass as thick as a 14-story building is tall. The figure indicated that the original 200-foot estimate for T-1 might have been a bit high.

To measure movements of the pack with relation to the ice island our scientists triangulated on several big sea-ice hummocks. One day the most conspicuous of these toppled over with a roar.

A persistent "warm" layer of ocean was discovered 400 feet below the sea's surface. Less than 150 feet thick, it averaged about 2° warmer than the water above and below it. There was no satisfactory explanation for its presence.

Survey parties mapped the island in detail. Early in April the camp began taking its fresh water from two lakes found beneath [illegible] ice. Freezing on all sides [illegible] water pockets to pressure; when first tapped they spouted in gushers.

Passing sea birds were identified tentatively as gulls and jaegers. Nobody had time for hunting, nor for hiking two miles over the pack to the nearest open water where it might be possible for large marine animals, such as seals and narwhals, to come up for air.

Winter darkness made it necessary to light the landing field, now provided with two runways. A complete portable lighting system was delivered by parachute.

Men Toil Through Long Polar Night

An oceanographer, a marine biologist, and two geophysicists are among the nine men who have toiled ceaselessly through the Arctic's long winter night, adding constantly to our knowledge of one of the least understood regions on earth. Each day has brought a new discovery, a surprise, or a revision of [illegible].

The future of the drifting polar base is difficult to predict. It could float off into warmer climes and break up, rejoin Target A back at its birthplace, or make another circuit of the Arctic basin—possibly many more.

Latest reports indicate that the ice island is beginning a second polar swing—good news for the Air Force, since it would mean another five or six years of useful service for T-3. If it does go around again, many of its former residents would like to go along.

Eyes on the China Coast

By George W. Long

"I AM . . . issuing instructions that the Seventh Fleet no longer be prepared to shield Communist China."

When President Eisenhower spoke these words in his first message to Congress, eyes of the world turned to the coast of China. They focused on Formosa Strait where, since the Korean war began, United States Navy vessels had "neutralized" the island refuge of Generalissimo Chiang Kai-shek's Nationalists (see page 507).

This Formosa stronghold, shaped like a fried fish, lies 85 miles off China's bulging midriff. Some 9,000,000 people—1,500,000 of them refugees—jam an island smaller than [illegible] New Hampshire, but having [illegible] strong [illegible]

[illegible] years [illegible] Chiang's least, [illegible] young troops [illegible]

Troops Practice for Invasion

In camp [illegible] with fighting stances they keep [illegible] maneuvers and basket ball. On the beach (at above) they practice landing operations, leaping—yet dreading—some day to return to mainland China (page [illegible]).

* See in the National Geographic Magazine [illegible] "Hot Spot of the Pacific" by [illegible], February, 1950.

"Range, 5,000 Yards!" Shouts a Chinese Antiaircraft Gunner

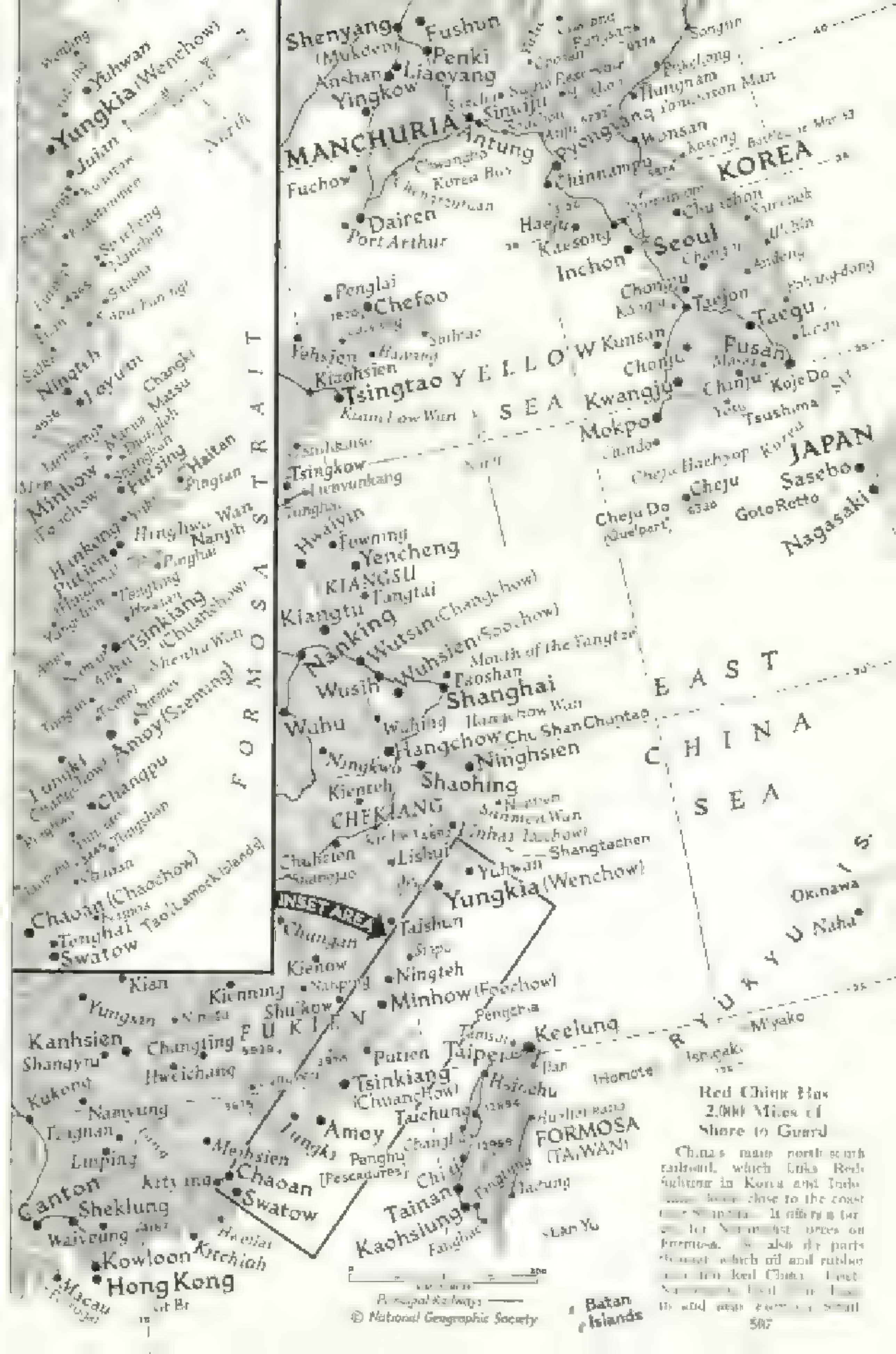
[illegible]

Besides Formosa—called Taiwan by its people—the Nationalists hold the [illegible] Pratas Islands. [illegible] Shangtaolieh, Matsu Island [illegible] Quemoy, but Nationalists have [illegible] with little loss.

From these [illegible] Nationalist commandos [illegible] Red positions [illegible] with [illegible] Mainland [illegible] Japan [illegible]

[illegible]

[illegible]



Red China Has 2,000 Miles of Shore to Guard

China's name north south railroad, which links Red fighting in Korea and Indo-China, has close to the coast [illegible] 11 miles [illegible] for [illegible] prices on premium. [illegible] also the parts [illegible] which oil and rubber [illegible] kept China [illegible] and [illegible]

Shanghai: the Hub of the Orient Before Communist Conquest

Ships Lay at Their Moorings at Hong Kong's Busy Docks. Handsome Houses and Apartments Dot the Distant Peak

Faxdow, Isolated by Mountains from Quito, Reinforcement Presents a Tempting Objective to Sea Raiders

Navy's Deepwater Harbor Uses Water Artillery Ranges of a Nationalized Island

Nationalist Marines Storm Ashore in a Mock Landing on Formosa

These men are proud of their new marine brigade. When an American advisor makes suggestions, they ask if United States Marines do it that way. "Yes," he says. "Okay, then we do it, too," they reply.

ful, and as brilliant as Chinese jade—the turquoise sea glinting in the sun, steep green hills, [illegible] bays, white beaches, mountains of lazy clouds, and fleets of junks with high sterns and patched orange sails. These typical junks make elusive blockade-runners.

Hong Kong I found to be bulging and booming. Chinese refugees have trebled its population from 600,000 in 1945 to more than 1,000,000. They crowd every [illegible] space and live in shanty towns on hillsides.

Ships by the score still anchor in this free port's magnificent, mountain-ringed harbor (p. 504). Products from all over the free world fill store windows. Refugee money, fleeing Shanghai, has built streamlined factories, fostered new industries, raised huge housing developments and skyscrapers.

Walking Macau's narrow, cobbled streets flanked with Old World houses in pastel colors, I imagined myself in a Mediterranean town. Four centuries old, the colony shelters 300,000 on a three-square-mile peninsula. As in Hong Kong, 99 out of every 100 are Chinese. Overshadowed commercially by Hong Kong, the colony has a big fleet of fishing junks, makes firecrackers and matches, and dabbles in international intrigue.

Scattered along the Chinese coast are dozens of famed, once-busy ports.*

Shanghai, colossus of all China, rears on land built by the muddy Yangtze (page 508). It waxed fat on trade of the Yangtze basin, where half of China's 450,000,000 people live. Reports say the Communists have deindustrialized Shanghai, moving many of its factories north and resettling more than a fourth of its 5,000,000 inhabitants.

Opposite Formosa lie Minhow (Foochow), Amoy, and Swatow, cities built up by trade with the West in the days of clipper ships (pages 510, 511).

Behind the coast facing Formosa, mountains rise 3,000 to 6,000 feet. There roads are poor; no railway reaches the coastal cities, and traffic takes to the sea in junks.

Well inland through most of its length runs China's vital north-south trunk railway, linking armies as far apart as Korea and Indochina. Only in 1951 was it extended to China's southern border.

* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "[illegible]" [illegible] September, 1952; "Along the Yangtze, Main Street of China," [illegible]; "Canal Cities of China," [illegible]; "Seven [illegible] Northern Waterway," [illegible].

Washington's Historic Georgetown

A Proud Colonial Port, Made Part of Young America's New Capital, Refused to Be Molested and Now Sees Its Old Identity Restored

By William A. Krenzer

WE STOOD on the heights above a [illegible] more than half a century ago.

The law was thoroughgoing: it took pains to proscribe not only the town's name, Georgetown, but also the very names of its streets. And the streets had interesting names—Gay Street (two of them), Needwood, Fishing Lane, Cherry Alley, Niagara, West Lane Keys, Wapping.

Southward past our vantage point a broad band of water slipped by in the sun. Trees along its banks wore a mist of faintest green under the first touch of spring.

"This is the River of Swans, *Colongurenon*," said my companion, well versed in local lore. "When the first white men came, the Piscataway Indians told them it was a very old name, the oldest they knew."

Looking down at the river, I could glimpse a small part of a water front where rich confusions of cargo once piled the docks. So much shipping crowded the berths that merchants of those days dreamed of displacing New York as the Nation's foremost port! Only a scow idled in to tie up now.

Not far from the shore, some two miles downstream, a swordlike shaft thrust up in sharp white against the sky. We were getting an unusual view of the Washington Monument from venerable Georgetown—40 years old when it assisted at the birth of our Nation's Capital, of which it forms a part. The River of Swans below us is better known by a later name: Potomac.*

Indiamen Anchored in Rock Creek

Our vantage point was a remote spot on the far edge of town. A short distance away sheep grazed, and an old vineyard was still cultivated. The pastoral touch seemed a bit unreal to me, for by taxi the White House was less than 10 minutes away.

I left on foot, however, bound for my own house on the opposite side of town. It is hard by the valley of Rock Creek, the steep-sided moat which is Georgetown's eastern boundary. In the golden days the mouth of the creek was a wide, deep estuary where large Indiamen rode at anchor, laden with goods from far parts of the world. Tides surged up the valley for a mile or more.

Today the estuary has shrunk to a small stream. Few motorists who use the parkway snaking along its banks suspect they are driving on what was once the bottom of a busy bay.

For part of the way my homeward path led along the Georgetown-Bladensburg road, an important link in north-south communications during the Revolution and through the early years of the Republic.

I strayed once to window-shop at Stonebock's saddlery. Gen. George S. Patton, Jr., stopped here just before departing for the north African invasion. He strode in to pick up the belt and holsters he had ordered for his pearl-handled pistols.

The saddlery is on the Falls Street stretch of the old main road, which became Bridge Street as one neared Washington. (After the abolition law of 1895 the prosaic letter "M" replaced both names.) On Bridge Street I passed Stone House, one of the town's few remaining pre-Revolutionary buildings. Tradition says Maj. Pierre L'Enfant, the French engineer who served so ably in the Revolutionary War, had his headquarters here when he was laying out the Federal City (page 532).

To Miz Hullybus's Corner

The true gateways to Georgetown are side streets which lead away from the busy shopping section into sudden and unexpected calm. The houses seemed to doze in the soft weather that day, and my gait slowed before I reached my corner bookstore to stop for a book—and find coffee waiting, too.

This corner of 28th and O Streets holds a fond place in Georgetown lore. It's Miz Hullybus's Corner, although she hasn't been there for a long time. Hullybus was not even her name; it just sounded that way to children. She was Mrs. Gottlieb Hurlebaus, a kindly lady who kept Hurlebaus Bakery and Sweet Shop and made it an institution. There was mourning when it passed shortly before the turn of the century.

I think Miz Hullybus must have left some of her obliging spirit about the premises. That might explain the helpful operations of the Francis Scott Key Book Shop, which occupies them today (page 514).

Books may be purchased there, of course, but the shop seems to devote as much time to extracurricular odd jobs and emergencies. It produces baby sitters when none can be

* See in the National Geographic Magazine: "Down the Potomac by Canoe," by Ralph Gray, August, 1956, and "Potomac, River of Destiny," by Albert W. Atwood, July, 1945.

A World Map for a World Business in Little Georgetown

Martha Johnson (left) and Doris Thoingson, owners of Francis Scott Key Book Shop, search the globe for rare volumes and cater to patrons on six continents. The National Geographic Society's World Map helps them [illegible] and defense [illegible]

Founded in 1751, Georgetown was already a mature community by the new Republic's standards. It had a thriving trade, gay social life, and developing culture. Only paper plans existed for rearing a Nation's Capital on the wild, tangled, and swampy lands to the east and south.

A scattering of structures and brick kilns [illegible] this uninviting [illegible] in the spring of 1800, when the entire National Government began [illegible] from the temporary capital at Philadelphia. Counting the President, cabinet members, officials, and [illegible] the total of Federal employees was fewer than 150.

Georgetown, with a population of [illegible] not [illegible] lawmakers' activities found scant space in its gazette [illegible] more important.

In time—and it took almost a century—the Federal City engulfed Georgetown, and the 57th Congress finally voted it out of official existence on February 11, 1895.

Georgetown, however, kept on being Georgetown.

This perseverance had its eventual reward. Three years ago Congress decided the legally nonexistent community had been surviving all along. A new law was approved September 22, 1950, which restored its boundaries and set up precautions to preserve its character as a place of historic interest, though keeping it legally still part of the District of Columbia. "Old Georgetown," as the law chose to call it, received the news with calm satisfaction.

Where Tranquillity Waits

Among the first evidences of community gratification was restoration of old street names. For the benefit of non-residents, out lampposts continued to display the designations imposed half a century ago when Congress directed the change of "nomenclature of the streets and avenues of Georgetown to conform to those of Washington."

[illegible] and ash over week ends, keeps spare keys for a dozen of neighbors' cars, [illegible] your shoes to the cobbler, and locates owners [illegible] dogs that stray in. One grateful poodle even sent a bouquet, and another time there was a case of [illegible] a carp.

When the lines of the District of Columbia were traced in 1791, Georgetown found itself within them as part of Maryland's contribution toward the area, "not exceeding ten miles square," authorized for the Federal City that was to be. This chance circumstance, however, has never kept the town from priding itself on its separate identity.

At first no one could challenge that identity

Some old-school Georgetonians still speak of a trip into the city" if they leave to shop or visit somewhere in the District of Columbia. The nearest [illegible] line is rarely more than half [illegible] in a [illegible] but out town is a small [illegible]. [illegible] little more than [illegible] square mile, [illegible] population about 15,[illegible].

[illegible] to "the city" or from [illegible] Georgetown is like being transported to a tight little [illegible], [illegible] and pleasant.

There is [illegible] charm about its narrow [illegible] streets with their uneven sidewalks of red brick. In summer arching trees turn [illegible] streets into tunnels of green. Old-fashioned [illegible] lamps [illegible] shuttering dormers with [illegible] workers suggest a warm welcome. Iron [illegible] fanlights wrought iron, and historic houses small and great add to the illusion of timelessness.

A [illegible] architect will [illegible] examples of the Federal period [illegible]. He may also see things to make him wince, where Victorian, modern, and nondescript styles [illegible] with the classical [illegible].

The 1930 law was [illegible] to safeguard the area's architectural [illegible] that [illegible] the loss of [illegible]. Exterior renovation and new construction now must be approved by the National Commission of [illegible] Art.

Owners of shops [illegible] since the law [illegible] their experience [illegible] that compliance with the [illegible] regulations [illegible] better business. However, the two main business streets, M and Wisconsin Avenue, still have a way to go to catch up with residential [illegible] restoration work.

Revived, Old Street Names Preserve Georgetown's Identity

[illegible]

More Than a Good Neighbor

My wife and I bought our [illegible] house on 28th Street [illegible] Massachusetts and [illegible]. We were veterans of Washington apartment-hunting [illegible] and [illegible] with houses in the suburbs. Our first reaction to Georgetown was what a [illegible] we had discovered. We still feel that way.

The neighborhood [illegible] a bustling [illegible] rear backyard fences. [illegible] someone else [illegible] of the moment [illegible] to take flowers to the [illegible] the [illegible].

When the owner of a small tailor shop was hospitalized by an accident, a [illegible] neighbor [illegible] to be [illegible]. He got the shop key from the injured woman, then worked before and after his own office hours handling out finished laundry and dry cleaning to [illegible].

Strangers find themselves speaking to strangers often at length. The day war came

Georgetown, Hemmed In for Washington, Clings to Its Potomac Waterfront

[illegible]

Press Secretary Meet in Dumbarton Oaks

[illegible]

in Korea I received a surprise briefing on conditions there from an engineer just back by air on leave. His job was on a project in the invaders' path. I could have listed all its important equipment when he finished. We had never been into hard [illegible] just happened to pick up our newspapers at the same time.

The town's residents offer a goodly variety. Butchers and bakers live here, and I should not be surprised to learn of a candlestick maker. There are families of social prominence, diplomats, legislators, jurists, journalists, writers, and artists. There also are modest households of young men and women striving to get launched on a career, and just "little people," as the saying goes.

One of the happiest men I have ever met was [illegible] whose salary was $150 a year.

When I heard this, I was incredulous. "Oh I don't need much," he explained. "I have the rectory to live in. I don't require much food, and those bills come out of the church fund. Some of the women come in to cook and clean the house. My clothes seem to last; a new suit or pair of shoes every year or two are about the only major things."

He smiled in his unworldly way. "Perhaps it was a blessing my health made me give up smoking years ago. With prices so high today, I might otherwise have difficulty with my budget."

Maryland Saw Possibilities

Rock of Dunbarton, Rock Creek Plantation, Knave's Disappointment, Beall's Level, Frogland, Discovery, [illegible] Prospect, Conjurer's Disappointment, Resurvey on Salop—such were the names of holdings which, in whole or part, went to make up Georgetown.

The site, with its rampart of heights, attracted [illegible] Ninian Beall (pronounced "Bell"). He had commanded Maryland's forces so ably against attacks by Indians that in 1703 the Province rewarded him with a patent of 795 acres on Rock Creek. This he called Rock of Dunbarton (later spelled Dumbarton), perhaps for the great rock above the Clyde in his native land.

Three decades later one George Gordon acquired some 100 acres adjoining Beall's. Other settlers came, most of them Scots, with a few Irish and Germans.

Maryland began to see possibilities in the area, so close to the head of navigation on the river. In 1751 the Assembly at Annapolis authorized purchase of 60 acres for a town "which shall be called by the name of George Town," honoring King George II of Britain.

The 60 acres were bought, at 50 shillings each, from George Gordon and a most reluctant George Beall, the colonel's heir, who fought to the bitter end. Rapid expansion added almost 82 acres to the town before Washington became President.

The port boomed because it tapped a rich agricultural area. Tobacco for export was almost gold: a single hogshead (1,000 pounds) brought "enough to purchase all the luxuries a family needed in the course of a year," a historian of the era reports. Sister colonies and other parts of the world looked on Georgetown as their flour bin. Lumber, fish, and other goods moved in brisk demand.

Come autumn, P Street often was choked from dawn to dusk with thousands of cattle and sheep from Virginia and large flocks of Maryland turkeys. Some were sold locally; others would be herded along to Baltimore or markets beyond. Heavy-laden Conestoga wagons rumbled to the wharves.

From Silks to Sand and Gravel

I have pored over copies of ships' manifests which conjure up the bustle of those days. Imports are eloquent of a young country's endless needs: silks, satins, lutrons, shoes, wines, tea, powder for wigs, coal, sugar, soap, tinware. An entry, "One Trunk Hosiery," reminds one that men wore knee breeches then.

Anyone knowing the romance of its past will find today's water front a disillusioning place. Much of it lies in shadow under an elevated motor freeway (page 516).

On Sunday mornings with my dog I have done a bit of nostalgic prowling along the river looking for ghosts where bulging warehouses used to be. Sand, gravel, and cement companies occupy most of the shore. There are a few lumberyards, building supply firms, and a dump for structural steel. A stubby engine shunts freight cars about. Noisy echoes bounce back from the highway overhead.

Few sizable industries exist now, most of them in the water-front section. A flour mill and a cooperage are the only ones reminiscent of the distant past.

Thus it is always reassuring to pass the offices of William King & Son, purveyors of coal and firewood to the town for generations. A sign on the brick wall proclaims: "On This Corner Since 1835."

Businesses less than 50 years old here are regarded more or less as newcomers.

The era of full-rigged merchantmen and flourishing commerce may be gone, but Georgetown remains Washington's port of entry, as it was from the start. Our Custom House still collects substantial revenue for the [illegible] Treasury. Last year's total was nearly two and three-quarter million dollars.

Collection of duties began soon after the War for Independence. The present Custom

A Slum Alley in 1950 Pomander Walk Presents a Tidy Look Today

[illegible]

House, completed in 1888 [illegible] with the Georgetown Post Office.

Regardless of what [illegible] a vessel uses, consignments for Washington from [illegible] other country must clear customs here. The office [illegible] from the Dulles and its [illegible] more than three miles away, the Dulles to National Airport, where international air freight and baggage are cleared.

Missing: a City Hall

I stopped at the Custom House one day to chat with an official. It was good to hear that [illegible] in Georgetown still [illegible] interest among newcomers as it every time.

Almost anyone can direct a stranger to the Post Office or the Post Road. Fewer are aware that customs is just around. It takes a real old-timer to tell you the whereabouts of the Georgetown City Hall. It too, was in this building.

There is no [illegible] marking [illegible]. When I [illegible] a young man there was a [illegible] sign [illegible] it [illegible] Mayor. You never saw [illegible] it was [illegible] several years and then it [illegible].

The city [illegible] Congress [illegible] in 1871, the year Congress integrated the town's government with that of Washington. Georgetown's had reason to resent their [illegible] autonomy. Even [illegible] that the officials were [illegible] and sometimes [illegible].

Indeed, the [illegible] Georgetown [illegible] city should [illegible]. Although [illegible] lived residents [illegible] law [illegible] with their own [illegible] and [illegible].

Georgetown was stern with themselves, too

Undue absence from a session or tardiness meant a fine for the offender. That law had teeth in it. Checking on sessions in 1791, I found three of the most important men in town, John Threlkeld, William Deakins, Jr., and Charles Magruder, listed among those penalized for being late. The fine assessed was 78 cents, no trifling amount then or for some years to come. The town's first police force, known as the watch, did not come into existence until the early 1800's, and the men's pay was $1.89 a week!

Celebrities from Washington to Spaatz

Georgetown today is credited with having more listings in *Who's Who* than any other place of comparable size. Illustrious ghosts might add that the town has been associating with famous names for generations and producing its own share of them.

George Washington, a frequent guest, passed this way to his first inauguration.* Earlier, the town watched Braddock's redcoats depart for disaster at Fort Duquesne during the French and Indian War, then Lafayette leading troops through for the rendezvous with victory at Yorktown in 1781.

Union Tavern, on Bridge Street, long was a favorite with Government officials and celebrated visitors. Congressmen who dwelt there rode to and from Capitol Hill in a special stagecoach drawn by cream-colored horses.

The hostelry sheltered such men as John Adams, Thomas Jefferson, Aaron Burr, Henry Clay, Martin Van Buren, John Marshall, Louis Philippe, Robert Fulton, Talleyrand, Jerome Bonaparte, and Washington Irving. Francis Scott Key stopped there often after taking a house a few blocks away, near the site of the modern bridge that bears his name.

One of the last public functions Washington attended was held in the tavern. Decades later Louisa M. Alcott, author of many novels, nursed Civil War wounded in its bedroom.

Sight-seers should have no trouble locating the northeast corner of Bridge and Washington (M and 30th) Streets, where the inn stood until 1935. A gasoline station has inherited the historic site.

Prominent Georgetonians of the Nation's fledgling years included Dr. William Thornton, architect of the U. S. Capitol,† Henry Foxall, whose foundry supplied many of the guns for the War of 1812; Stephen Bleecker Balch and John Carroll, noted clergymen and educators; William W. Corcoran, philanthropist who gave the Capital its Corcoran Gallery of Art; and George Riggs, Corcoran's partner in the banking company which helped restore Europe's shaken faith in the credit of the United States at a critical period in 1848. This firm was the precursor of Riggs National Bank, now the foremost in Washington.

Many notable names have since been added: U. S. Grant, Robert Todd Lincoln, Alexander Melville Bell (page 535), Gen. Adolphus Greely, Maj. Walter Reed, Julia Marlowe, E. H. Southern, Mrs. E. D. E. N. Southworth, James Forrestal, Sir Willmott Lewis, and J. R. Hildebrand, beloved Assistant Editor of the NATIONAL GEOGRAPHIC MAGAZINE.

Among well-known residents at the present time are Supreme Court Justice Felix Frankfurter; Senate Majority Leader Robert A. Taft; Massachusetts' John F. Kennedy, youngest member of the Senate, and almost a score of Congressmen; Allen W. Dulles, Director of the Central Intelligence Agency; Dean Acheson, former Secretary of State, Adm. Alan Kirk, Ambassador to Moscow, 1949-1952; Gen. Carl Spaatz, former Chief of Staff of the United States Air Force, and other officers of the armed forces and diplomatic service, both active and retired.

Loss of Trade Brought Dark Days

Georgetown has been called a city of brick. The bricks and exceptionally fine masonry work were major factors in preserving the Federal character of the town during the lean years that befell it. Many factors contributed to the decline but the full impact was not felt until late in the last century.

A fall in the area's water table and the silting up of the Potomac, due in part to bridge building for Washington, probably marked the beginning. As early as 1807 Georgetown tendered Congress of the gravity of the problem. Another memorial in 1830 complained that $180,000 of town funds had been spent between 1802 and 1830 for navigational improvements below the Capital and on the town harbor. Adequate aid did not materialize. Larger vessels sought other ports. Trade kept dropping off, however slowly.

The Chesapeake and Ohio Canal, in which the town invested heavily to recoup its big

* See "Travels of George Washington," by William Joseph Showalter, NATIONAL GEOGRAPHIC MAGAZINE, January, 1932.

† See "U. S. Capitol, Citadel of Democracy," by Lonnelle Aikman, NATIONAL GEOGRAPHIC MAGAZINE, August, 1952.

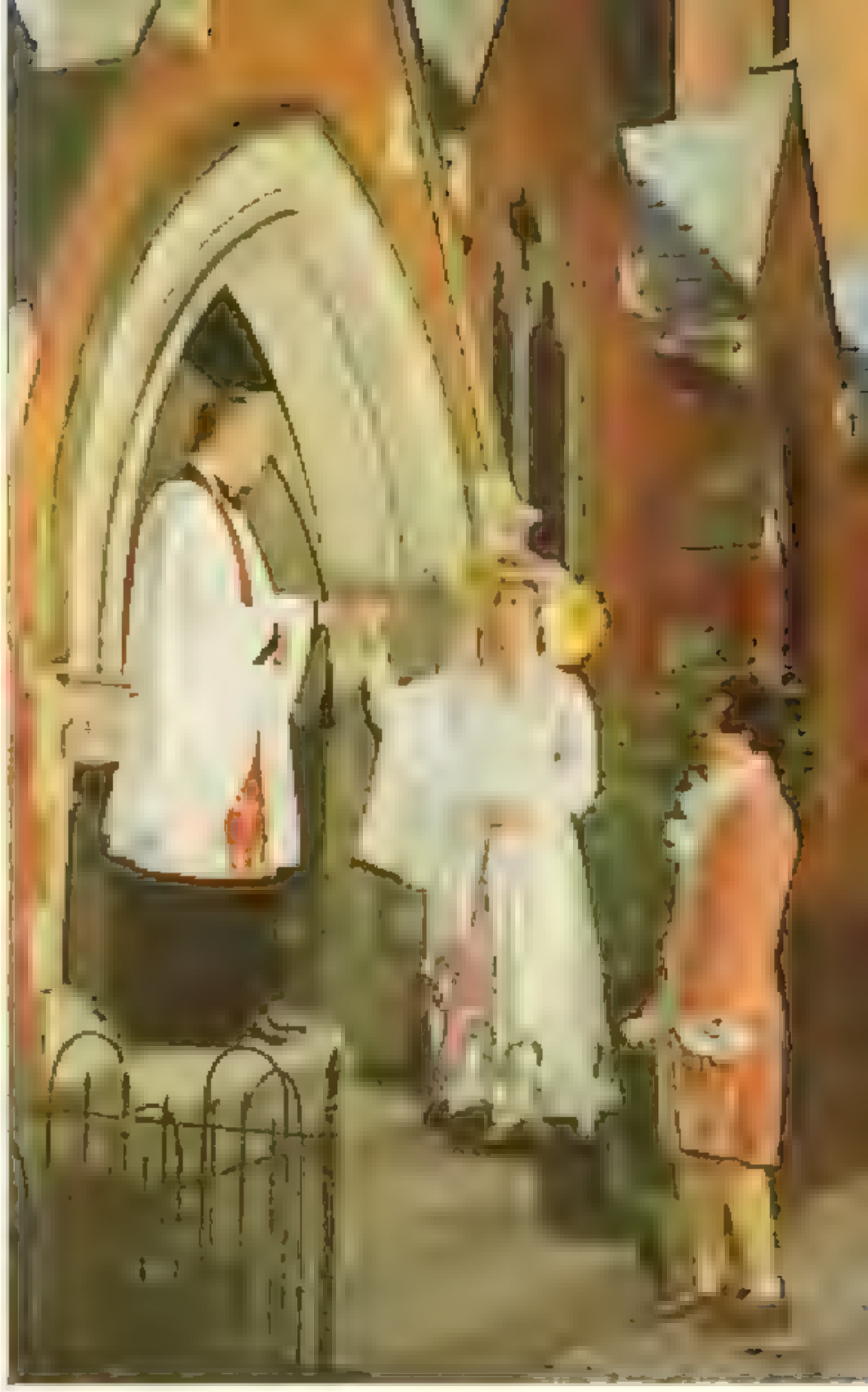
Tiny Homes and Inviting Doorways Lend Charm to Georgetown

Many small houses once used as slave or servant quarters were modernized during the community's recent renaissance. Their narrow façades in many cases mask fairly spacious living quarters. Less than 15 feet wide, this recessed three-story house is one of the smallest. It was fashioned from the domestic wing of a house on N Street near 31st.

Uncongested on Marks Its 200th Year

In This House Lives the Man Who Says "No"

Bach Chorales Are Their Joy



An Artist Shows His Canvases Beside Chesapeake and Ohio Canal's Old Lock Gate

[illegible]

Houses of "Rushton Row" Line an Ensemble Towards Which Flooding Moves

Exterior's Fine Lawns and Classic Facade Reflect Servants

[illegible]

A Byzantine Mosaic Embraces Students

[illegible]

Visitors Stroll the Grounds of Dumbarton Oaks, Birthplace of the United Nations

This beautiful R Street mansion, set amid 16 acres of gardens and trees, dates from 1801. Here Vice President John C. Calhoun feted Lafayette during the Marquis's American [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

commercial losses, also proved a disappointment (page 524). Begun in 1828 to funnel more of the goods of a developing hinterland through Georgetown, it was not completed as far as Cumberland, Maryland, until 1850. Floods, financial woes, and reorganizations harried its progress. Meanwhile the railroad had emerged as an increasingly ominous rival.

This threat did not prevent the canal from enjoying its best years during the 1870's and 80's, although Georgetown's stanch sympathy for the Confederate cause became a political liability after Appomattox, complicating the town's fortunes. When the panic of 1873 came, it hit the old port hard.

And all the while the city of Washington was steadily growing. In the closing decades of the last century families of wealth and prominence from many parts of the Nation began moving to the Capital to take part in its political and social life. They built magnificent homes on L'Enfant's once-empty avenues and entertained lavishly. Families drifted away from Georgetown for what were becoming more fashionable surroundings.

"Georgetown? Why nobody lives there!" It came to that.

The community deteriorated into a cheap-rent neighborhood. Fine homes became second-class boardinghouses. Neglect and disrepair produced a dilapidated look. Property values hit bottom. For a mere $8 a month tenants had their choice of many snug brick houses of the Federal period, including the one now my own.

Only a small Old Guard stubbornly held out, hoping against hope that Georgetown would have a rebirth.

Americans Awake to a Heritage

The Wilson administration brought Newton D. Baker to Washington and house-hunting troubles to Mrs. Baker. She almost despaired of finding a place with a yard for her children and thought of trying Fort Myer in Virginia.

"Too bad," sympathized a friend, "you'll have to go through Georgetown."

Instead the Bakers went *to* Georgetown; the Secretary of War leased a fine old house at 3017 N Street (page 544). That may have been the town's turning point.

After World War I Americans began awakening to the graceful heritage of the country's early architecture. Two influences helped to stir this interest—the opening of the American Wing of the Metropolitan Museum of Art in New York, and the work of John D. Rockefeller, Jr., in restoring Williamsburg, Virginia.*

This was Georgetown's moment. The craftsmen who reared it had built the town to last. It was steeped in history and tradition.

People started buying old houses and restoring them, much to the amazement of real-estate men. By 1930 the revival had picked up a momentum which economic stresses and World War II failed to check. Property values did more than perk up. The $8-a-month houses, restored, brought $137.50 even with wartime rent control in effect.

Perhaps the most remarkable feature of the whole restoration movement is that it has been financed by private money, most of it on a family scale. No support came from large [illegible] government subsidy.

Old Town Spirit Survives

This may explain the resurgence of the old community spirit. The Georgetown Citizens Association and the Progressive Citizens Association led the fight to preserve the town's character.

When apartment builders threatened invasion during the revival's early days, Georgetonians marshaled such a persuasive case that the District Zoning Commission fixed 40 feet as the maximum height for new structures in residential areas. Next they won their fight to have the town rezoned, so that commercial enterprises are now largely confined to Wisconsin Avenue and M Street, or the water front district. The biggest feather went into the town's cap with enactment of the "Old Georgetown" legislation restoring the town's identity in 1950.

Visitors are often surprised to discover the city of brick is a town of small houses. We have our big show places—Tudor Place (page 542), Sevier Place, Evermay (page 526), Dumbarton Oaks (page 527 and opposite), and other large houses of grand tradition that are architectural gems. But many houses are small, some even tiny.

The narrowest one I know is 2726 P Street. I measured its frontage not long ago. The tape said 8 feet 2 inches. There are others only 9, 10, and 11 feet wide (page 521).

Some are adorned with iron plaques which go back to the days of bucket brigades and amateur firefighters. These fire marks bear the emblems of the first local insurance firms.

Volunteer fire companies controlled such underwriting ventures, and they did not forget the fact in answering alarms. If two houses in a neighborhood caught fire at the same time, the volunteers concentrated on the house bearing the insignia of their company. Any damage claims collected by their insured would affect the firemen's pocketbooks. A noninsured house could wait.

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Genesis of the Williamsburg Restoration," by John D. Rockefeller, Jr., and "Restoration of Colonial Williamsburg," by A. R. Goodwin, April, 1957.

House fronts, particularly the small ones, give no hint that behind them are carefully tended yards, some of doll size, others of more comfortable proportions. I think more effort is lavished on these gardens than on any other plots of soil in the world.

It is estimated the town has 5,000 gardens, as against six swimming pools (page 539). Relatively few gardens are of the large formal class, with expertly trimmed hedges and professionally tended plants. The others are zealous hobbies, and rewarding even when they don't fulfill spring's optimistic expectations.

These garden-backyard combinations are like an extra room, and a favorite place for entertaining (page 538). Since available space is so often the arbiter, most groups are small. Only the big houses have gardens extensive enough for large parties.

Except for working hours, many residents virtually live in their private outdoors a good part of the year. Spring comes early; autumn is usually long and mild. And in sultry, humid summer a shaded yard, however modest in size, is an inviting retreat.

We cite Charles Dickens on our summer advantages. He found Georgetown preferable to Washington's burning heat and "insalubrities." Interestingly enough, the author's great-granddaughter, Monica Dickens, herself a writer, resided here until last year.

College Born with the Constitution

Graceful spires crown the heights above Georgetown. Viscount Bryce, the learned British diplomat, wrote of the pleasure he found in admiring them in the sylvan setting he beheld from "modest little N Street," where he had his house. "They are the towers of Georgetown University, the country's oldest Catholic institution of higher learning."*

Like the United States, the school was born in 1789, the year the Constitution was inaugurated and Washington became the first President. It was brought into being by Archbishop John Carroll of Baltimore, an intimate of both Washington and Benjamin Franklin.

A prospectus, issued before any students were enrolled, speaks for the spirit of the founder. In a dated copy I read: "The School will be open to Students of every Religious Profession. They, who in this respect differ from the Superintendent of the Academy, will be at Liberty to frequent Places of Worship and Instruction appointed by their Parents." This policy has prevailed ever since.

The college made its start with one small building, a few students, and a very limited library. It had an acre and a half of land, purchased from John Threlkeld, the hardy town councilman who was fined (page 520).

For 1953 the university enrolment is 5,000, representing most States, many foreign countries, and a variety of religions. A quarter-million books crowd its libraries. The campus has expanded to more than 100 acres and there are now 25 buildings. The President, the Very Reverend Edward Bernard Ronn, S.J., administers, in addition to the college, eight graduate schools, astronomical and seismological observatories, a medical center, and a chemo-medical research institute.

Before visiting the heights I never suspected how the decision on the college site affected the present face of Washington.

Among locations given consideration was an undeveloped rise of land called Jenkins Hill, three and a half miles away. The idea was discarded because the area was wild and "too far from the city"—Georgetown. L'Enfant later chose Jenkins Hill for the Capitol.

"That has its postscript," a faculty member said with a smile. "We almost had the Capitol on campus, after all.

"When Washington was burned in 1814, 'Old North' was the largest structure in the vicinity. It was offered to Congress for a temporary meeting place. To buoy national morale, however, Congress finally thought it best to get along in the least damaged buildings of the burned city."

Old North, the second college building erected, is still in use.

Presidents of the United States, from Washington to Eisenhower, with occasional exceptions, have honored the university by attending commencements, by special visits, or in other ways. Washington set the precedent in 1797 when he rode up from Mount Vernon to Old North and addressed the student body, which included two sons of one of his nephews.

Where Eclipse Hunting Starts

Lafayette was feted on his triumphal visit in 1824. The reception at the college so impressed him that he made special note of it in his speech to the National Assembly upon his return to France. Leading figures from other countries have been received at the university ever since.

The astronomical observatory holds special interest for National Geographic Society members who followed the reports of their Society-sponsored eclipse expeditions to Russia in 1936, to the Pacific's Canton Island in 1937, to Brazil in 1947, and to the Far East in 1948.†

* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Washington Through the Years," by Gilbert H. Grosvenor, November, 1951, and "The Nation's Capital," by James Bryce, June, 1913.

† See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Operation Eclipse, 1948," by William A. Kanes, March, 1949; "Eclipse Hunting in Brazil's Ranchland," by F. Barrows Colton, September, 1947; and "Nature's Most Dramatic Spectacle," by S. A. Mitchell, September, 1917.

Georgetown Residents Get a Lesson in Federal Architecture

[illegible]

[illegible] for these properties [illegible] done under the observatory plan. Both the present director, the Reverend [illegible] J. Hessler, S.J., and his predecessor, the Reverend Paul A. McNally, S.J., have been enthusiastic leaders.

This is one of the country's first observatories. Among its prized possessions are two meridian [illegible] which [illegible] with the same [illegible] through with [illegible] from London where the house of Molineux made them.

I spent hours poring over the [illegible] volumes of the observatory's log, covering a span from its founding in 1842 to 1880. Not all entries are astronomical. I came upon [illegible] Mar. 4, 1861, on the occasion of the first Inauguration of Abraham Lincoln as President of the United States.

[illegible] the steamer *Philadelphia* [illegible] Washington. The steamer carries from Norfolk, Virginia, the Japanese [illegible]; they are to land at the Navy Yard [illegible] by a military [illegible] to the Willard's Hotel, Washington. The military company [illegible] to form part of the procession [illegible] at 12 o'clock to the Navy Yard [illegible] with them."

Many [illegible] the log record the assignment of [illegible] W. Scott Moore of the Security [illegible], to the eclipse expedition to Russia.

The [illegible] among the [illegible] of century are, with few exceptions, in the hand of the four [illegible] the Reverend [illegible] S.J. A versatile scientist, [illegible] was the first to [illegible] accurately. Weather [illegible] and [illegible]. He [illegible] official weather [illegible].

Vaults Guard Rare Treasures

This log [illegible] preserved [illegible] the university's archives and its treasures of hand-written manuscripts from [illegible] and Renaissance times, rare editions, and other [illegible].

In the archivist's office I examined the [illegible] manuscripts of [illegible] masterpieces given to the university from [illegible], by Mark Twain, and Richard [illegible]. I now know that Mark [illegible] the manuscript is

Some Houses Stood Before Washington Was Even a Plan

[illegible]

Memories Haunt This Old Cabin

[illegible]

eight pages less than the author's count shows.

Anyone interested in Americana will find many reasons to tarry. Here I found General Sherman's shoulder straps, and paper money our town printed in its own name between 1800 and 1860—tobacco-coupon sized notes worth from 12½ cents to a dollar.

The name of William Gaston begins the lengthy list of those who have been students on the heights. Congressman and orator, he was rated the equal of Clay and Webster in debate. North Carolina, his native State, made him its Chief Justice.

"Maryland, My Maryland" came from the pen of another alumnus, James Ryder Randall. Joseph Clark, an early graduate, taught and encouraged Edgar Allan Poe, recognizing him as "a born poet."

Five relatives of George Washington attended the college. The sons of Presidents Van Buren, Tyler, and Johnson are on the rolls, and the adopted son of Jackson. An esteemed Chief Justice of the United States Supreme Court, Edward Douglass White, is only one of the many sons of Georgetown who became distinguished public servants.

Near the university campus is a celebrated institution, the Volta Bureau to promote the teaching of speech to the deaf. First of its kind in the world, the bureau was founded by Alexander Graham Bell, inventor of the telephone and second president of the National Geographic Society.

In its Grecian-style building the bureau houses the world's largest library on deafness. From it, for over 60 years, have sprung many far-flung efforts to help the deaf speak. Along the lines of the bureau England modeled its National Institute for the Deaf and Japan revised its method of teaching the deaf.

Last year the bureau's small but dedicated staff answered thousands of letters from 37 foreign countries and the United States. It tells parents how to help their deaf babies talk and how to lead deaf sons and daughters from their silent world into the world of hearing people.

A Romantic Story

The Volta Bureau publishes a monthly review for teachers of speech and persons who are concerned with deafness. Sinclair Lewis was one of its early editors. Honorary President of the organization is Mrs. Calvin Coolidge, a teacher of the deaf before her marriage. Board members include Helen Keller, Mrs. Spencer Tracy, Supreme Court Justice Harold Burton, J. Edgar Hoover, and Dr. Gilbert Grosvenor.

Behind the Volta Bureau is a romantic story. Alexander Graham Bell's wife, deaf at the age of four years, had learned to speak and read lips with great facility as a child. This she had accomplished with her mother's help at a time when no schools in the United States taught deaf children to speak.

Inspired by his wife's extraordinary achievement and realizing what her success meant to him, Bell determined that "no deaf child in America shall be allowed to grow up mute without earnest and persistent efforts having been made to teach him to speak and read lips."

Across the street from the bureau stands the former home of Alexander Melville Bell, father of the telephone's inventor. Bell senior was himself the inventor of a system of visible speech which was an early aid in teaching the deaf to speak (opposite).

Telephone Aids the Deaf

For 30 years Alexander Graham Bell maintained a laboratory in his father's house, using the part which is now the garage. He called it the Volta Laboratory, for he financed it with France's Volta Prize money which he won in 1880 for inventing the telephone.

In this laboratory he and his associates perfected the graphophone. Few people are aware that the graphophone made the phonograph practicable by replacing short-lived indented cylinders of a yielding material with durable engraved wax records which could be used over and over again. Bell disposed of his patents and gladly used the money to endow the Volta Bureau.

Another university neighbor is the Georgetown Visitation Convent, a girls' boarding school, founded in 1799. Three red brick buildings—the academy, chapel, and monastery—front on the street.

The monastery windows are firmly shuttered from the inside. No curious passer-by may peer in. Those within have no desire to look out. They are cloistered nuns who teach in the academy. There is, of course, a street entrance for the 300 students, who are in high-school or junior-college courses.

So well regarded is this convent, the first established in the infant United States for the higher education of Catholic girls, that there is always a waiting list. One man took no chances on his daughter's admission. A few hours after her birth he wired, "Place child daughter for class of 1964."

The movement to restore Georgetown was still in its early stages when it ushered two community undertakings that have blossomed into annual attractions. They are the garden and house tours, which each spring are a magnet for throngs of visitors.

In 1928 an overburdened charity worker plainly needed a car. Public-spirited women decided to do something about it, and the

Alexander Melville Bell (1819-1905): He Invented Visible Speech

[illegible]

[illegible] area of a garden pilgrimage was born. The [illegible] women raised their sights. Volunteers [illegible] program advertising, and gifts, [illegible] and enthusiasm, finally gave [illegible] Neighborhood [illegible] been made.

[illegible] children. But [illegible] for recreation [illegible] purposes.

[illegible] for the welfare work at St. John's [illegible] Church [illegible] the eyes of its present [illegible] the Reverend William M. Sharp, [illegible] the [illegible]

"That goal is to open the door to better living for everyone of the community, regardless of race, [illegible]

Democracy at Work

I have heard it said that Georgetown is a good example of democracy at work. Well [illegible] are often [illegible] side by side [illegible]

[illegible] small communities [illegible] places of worship — [illegible] Temple on [illegible] serves a [illegible]

The Temple [illegible] my house. [illegible] the street an

odd note of color as they pass on Sundays, clad in green, red, white, and lavender robes very much like Biblical dress.

The Mount Zion Methodist Church, oldest Negro congregation in the District of Columbia, was founded in 1816 with 125 members. Before the Civil War its membership book frequently recorded opposite a name the single word "sold." It meant the sale of a slave member. After the name of Edward Brown in 1834 appears: "sold—poor fellow."

The More Things Change . . .

One of Georgetown's chief concerns in its early days was to keep the town clean. Residents are equally mindful of the problem today. When the restoration began, it was accompanied by a crusade against trash, refuse, and unsanitary conditions.

Street cleaners are held in proper regard here. I've encountered them at work in the still sleeping streets as early as 6 in the morning. Each year they are guests of honor at a special garden party which includes speeches, lunch, and gratuities. One of the town's leading women is hostess.

Traffic also worried the first officials, apprehensive about the breakneck passage of stagecoaches or horsemen galloping through town. Since M Street is a busy channel for the Capital's populous suburbs in Virginia, the traffic problem is still with us.

In the past few years optimistic pleas have been made for building monuments to the leisurely pace of bygone times, even if it meant stop signs at every intersection. As far as I can learn, such proposals are still tactfully pending.

Some reminders of the past are convenient, even touching.

Negro sawyers used to make their rounds, wagons stacked with logs cut to varying lengths so a household could have no trouble getting the right size to fit his fireplace. Sawyers are still part of the scene in late fall and winter. Most wood peddlers are motorized now, but from time to time I have seen some who rely on the old-style horse-drawn wagon. Like them, the itinerant fishman also believes old dobbin is here to stay awhile.

On Christmas Eve, from colonial times until the Emancipation Proclamation, bands of slaves went through town singing carols in soft, rich voices. They were rewarded with sweetmeats and other gifts.

Despite Georgetown's stretch of lean years, the custom survived. Negro children still go about the streets singing Christmas hymns and spirituals as only they can sing them.

[illegible] anniversary in 1951 with understandable pride, heightened by the still sweet victory of the "Old Georgetown" bill (page 522). A decorous observation it was, nothing to flaunt an older heritage and traditions before the much younger sections of the District of Columbia.

The program provided for a parade, fancy-dress ball, dancing in the streets, concerts, and special church services. Its most imaginative feature was a revival of the fair authorized by the colonial act creating the town, said fair to be held spring and fall as "encouragement to back inhabitants, and others, to bring commodities there to sell and vend."

One pleasant evening after the bicentennial, my wife and I were sitting in the yard with the couple next door, a U. S. Navy commander and his wife, now lost to us by assignment in north Africa. We fell to talking about Georgetown.

I recall observing how many towns there are in this country and the world which have kept one rendezvous with history and are content to bask in the reflection of that moment. Georgetown, it seems to me, has been keeping such appointments for a long time and evidently intends to continue.

The Dumbarton Oaks meeting laying the groundwork for the United Nations might be cited as a recent indication of interest (page 517).

The commander's wife happened to be an Englishwoman, just about to become an American citizen. Perhaps her British background had something to do with the unexpected comment she offered.

"Go It, Old Girl!"

"You know," she said in the clipped manner that always delighted us, "I love it here. The town keeps reminding me more and more of the curtain lines in Laurence Housman's *Victoria Regina*. The Queen describes how her Jubilee procession neared Hyde Park Corner where suddenly a surge of men broke through the lines of police and troops.

"They ran alongside her carriage, cheering and shouting: 'Go it, old girl! You've done it well! Go it.'

"Somehow, you almost get to feel that way about Georgetown."

[illegible] the National Geographic Society by the first of the month to effect the following month's issue. For instance, if you desire the address changed for your June number, the Society should be notified of your new address not later than May 1. Be sure to include your postal zone number.

A Quaint Inn Reveals a Stately Hall Not Suggested by Its Plain Exterior

House Fronts Built Up to the Sidewalks Give No Hint of Cool Green Gardens in Back

Backyard Space Is Precious. Just Big Enough for This Georgetown Garden Is Its 12-foot Swimming Pool, Like a Giant's Bathtub

This Ice-cream Shop Has Been a Rendezvous of the Younger Set for Generations

[illegible]

These Six Landlords Are Landlords at a Time

[illegible]

Stately Lodge Place Has Been the Home of the Peter Family a Century and a Half

[illegible]

[illegible]

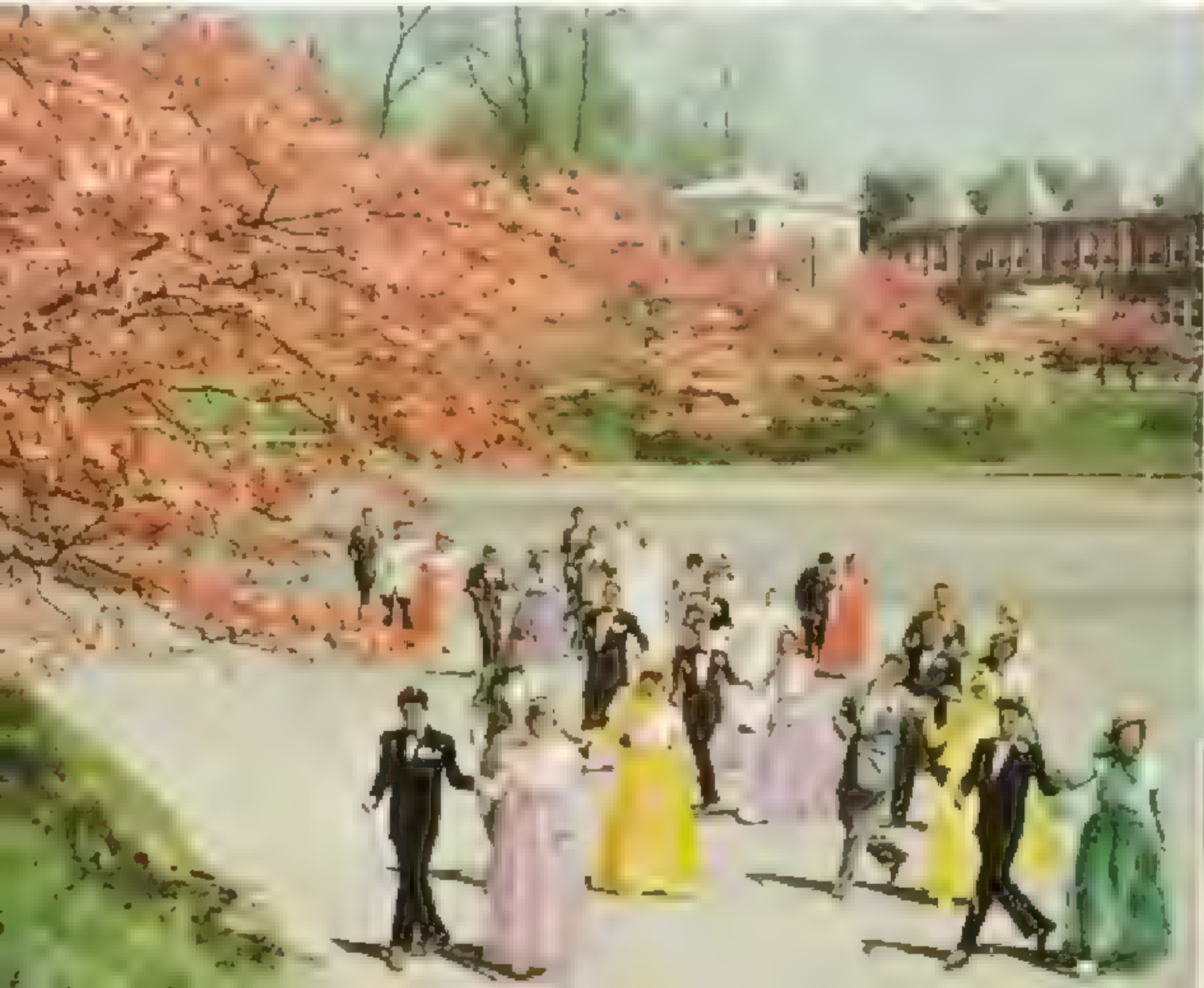
[illegible]

[illegible]

Spring Returned — Youth Blooms Like the Dogwoods

[illegible]

[illegible]



Report from the Locust Wars

From Attack in Jeep Men Fight an Ancient Enemy with American Aid; the Authors Describe Operations in Iraq's Vast Desert

By Tony and Dickey Chapelle

THREE [illegible] forbidding desert of Iraq, we served as war correspondents with one of mankind's oldest armies.

The foe was the migratory grasshopper, the locust of the Bible. For centuries famine has stalked over land after land in the wake of whirring swarms [illegible] "eaten [illegible] that remained not any green thing in the trees, or in the herbs of the field, throughout all the land of Egypt" (Exodus 10:15).

Loneliest and least honored of legions are the armies of locust fighters. Their banner is a crumpled poison-bran sack. Their weapons move on trucks that every other army has discarded. Their patrols jolt by jeep or rock on camelback across the desert's wastes.

Whole battalions weave casually across national boundaries, occupying and withdrawing overnight. Platoons survive and fight on a goatskin of tepid water. Sentries club the horned snake at the edge of camp, step on the fat scorpion, or drive the desert wolf away with flaring sagebrush fires. Vehicles are overturned and engulfed in fierce, blinding sandstorms.

U. S. Planes Join Iraq's Locust Army

In a pink wasteland almost blank on the map, the Iraq army against invading locusts battles catchhand and barefoot under a sun that can suck the life out of a man's throat in half a day. Its first air arm, two small planes bearing United States insignia, learned to navigate across this desolate region by following flag markers, and to use a handful of sand, flung into the air as a wind sock.

A year ago we joined the Iraqi locust fighters at Al Busaiya, an advance base 75 trackless miles from cultivated land.

Millions of locusts, hatching in the desert, stretched beyond the country's southern border. To the north, ripening grain and dates covered the Mesopotamian valley, traditional site of the Garden of Eden. Every insect killed here in the wasteland would be one less to ravage these crops.

The use of an organized force to battle the locust is thousands of years old, the idea of meeting the enemy in the desert is only 25. If the men who had that idea were right, the locust scourge may someday be halted for good in wastelands like Iraq's.

In past years the whirring horror had been checked in Iraq—but only checked. Some swarms slipped past the army; others hopscotched in from deep in other nations beyond the reach of defending Iraqi forces.

Airborne Invaders from Africa

The swarms which had sired this generation of half-grown locusts—our immediate enemy—had come from Saudi Arabia and Egypt. They had moved leisurably along a broad path, just as locusts have done countless times since an unknown craftsman carved the earliest record of their migration, a decoration on an Egyptian tomb of 2400 B. C.

[illegible] years.

Some fields are denuded each season; then the year's labor of a whole region may disappear in a day and the price of bread soar beyond the reach of the poor.

The plague's grim timetable includes half the countries of Africa, every Near East nation, and much of South Asia (map, page 546).

Recent invasions have come in late winter from Africa to Arabia, then to Jordan, Israel, and their neighbors, and in March and April to Iraq. In late spring and early summer the wide land belt from Iraq to India is struck, and by August the insect horde has started back whence it came. Every winter campaigns against the locust reach their height in Africa—Somaliland, Kenya, and Ethiopia.

In the worst years the insects leave stark famine behind them. Iraq suffered one of its most devastating invasions in 1943. The first postwar date crop was ripening when the locusts whirred in, like the hordes over Egypt in Biblical times, riding winds off the Persian Gulf.

One day thousands of palms around Basra sagged with their weight of fruit, and grain

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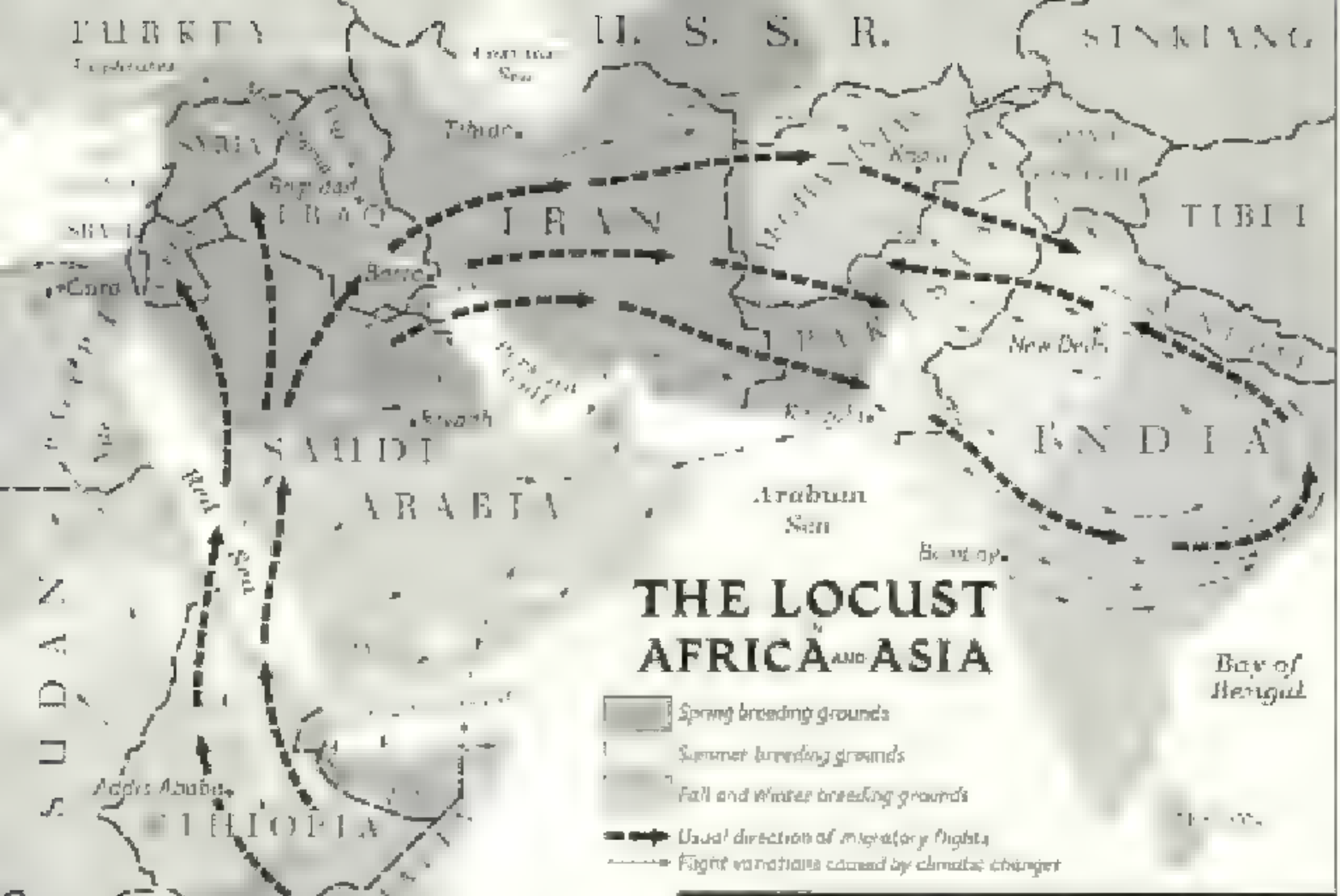
← **Colonial Color in Old Georgetown Makes the Yesteryears Live Again**

Tars and 18th-century costumes blow in on a street proudly named N to contrast with Washington usage. Gay Street, the former name, gave no stranger his bearings, but it amused traveler.

Built in 1794, the house on the right is a splendid adaptation of federal period types more common in New England. Secretary of War Newton D. Baker made it his home during World War I.



Hungry Locusts, Flying on the Winds Eat Their Way Across Two Continents

In some years the Desert Locust is a solitary, stay-at-home insect. But suddenly, as in 1957, it [illegible] character, gathers an army, and starts a pitiless, migratory spree. Wind and the big wings carry swarms from Africa to India, and some return. Egg hatchings bred on the way refresh the ranks like relay runners. Crop losses sometimes threaten nearly a fourth of the earth's people with famine.

fields to the north were golden velvet in the hot stillness. The next, locusts came—first a stippling, then a sea of crawling yellow. Their rustling filled all ears and hearts.

When the invaders left, the Basra region looked like a vast battlefield. Date groves showed a forest of bare spars, grainfields were stubble, and even tough, wild marsh reeds had disappeared.

Official reaction to the disaster was prompt. It was then that Iraq's modern locust army was born. Legislators as far away as London and bearded sheiks in the stricken zone united to move against the locust.

But once the victims were buried, survivors left, and political consequences reckoned with, the locust was forgotten except by a handful of entomologists who were to be our hosts in the new crisis of 1958.

During this recent invasion the locust fighters of Iraq, like those in Pakistan and Iran the previous year, began using two new weapons. One was aldrin, an insecticide developed in the United States, so potent that two ounces in a gallon of water or diesel oil will rid an [illegible] of locusts, the other, small, efficient airplanes which can spray the solution over 100 acres in half an hour.

Supplying planes, pilots, and poison is a project of Point 4, the U. S. program of technical cooperation with foreign countries.

The locust is a bonanza among governments, and the Iraqi force fighting the invader last year was part of an international army. Much of its intelligence came from British locust [illegible] in Saudi Arabia, Kuwait, and National in Kenya.

Pakistan cooperated by lending much of the precious aldrin. The poison was flown in from Karachi when it was feared that Iraq's allotment might be delayed in transit.

Winning Allies in Desert and Town

But the addition of American pilots and spraying planes to the 400-man Iraqi force was the most dramatic new alliance.

We soon discovered that the locust fight cuts across race, religion, tribe, wealth, creed, education, position—every consideration except the necessity to kill insects. There is no

Arabs and Americans Unite Against the Locust, Which No Nation Can Whip Alone

[illegible] Project of Point 4, or IICA ([illegible]). [illegible]

need to explain the locust danger to any farmer, and nine out of ten [illegible]. Hence the U. S. mission [illegible] Department of Agriculture [illegible] invitation and acted accordingly [illegible] the people of Iraq.

[illegible] as much they seek out anti-locust crews to report where they last encountered the enemy.

Even Smugglers Lend a Hand

Desert police patrols, [illegible] smugglers' trucks stopped to report [illegible] locusts. The smugglers themselves risked [illegible] about locust eggs, swarms, or lappers seen.

A desert sheik, land-poor but wearing a [illegible] with ball on tassels offered to [illegible] locust patrols.

In towns taxi drivers, shopkeepers, sharecroppers, and children trudged to the agricultural office with insect specimens and word about where they found them.

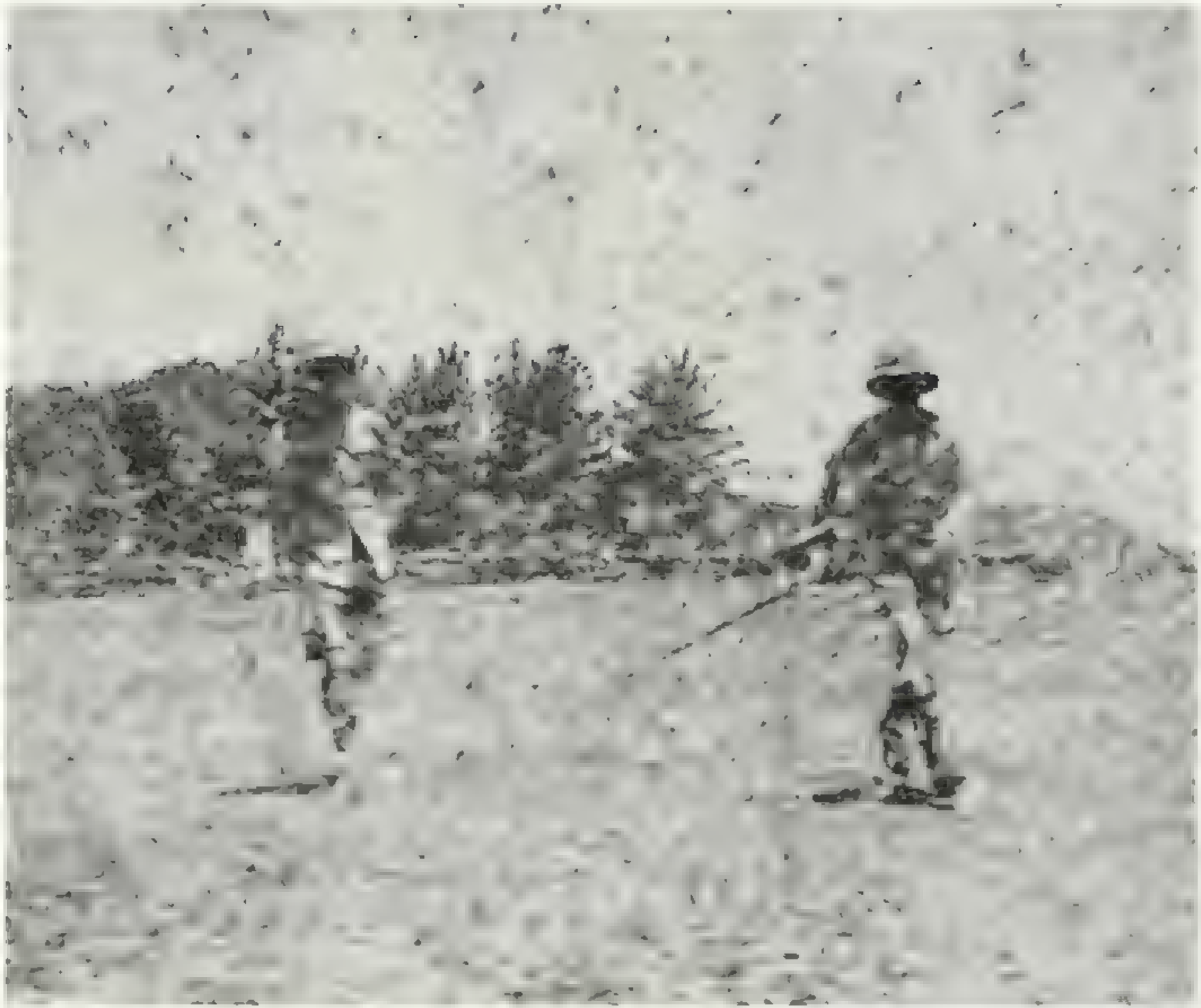
At the farthest front of the Iraqi locust war the Neutral Territory jointly owned by that nation and Saudi Arabia—an Arab [illegible] emissaries in ceremonial [illegible] to the locust army's head leader.

[illegible] or a glass of tea for a visitor in his Baghdad office. [illegible] years in [illegible] State of Texas A & M and [illegible] Lone Star State.

Dawish still has a flourishing fund of Texas humor and a broad command of colloquial English. When negotiating in his native [illegible] by bursting out in English, then dropping [illegible] voice back into parent Arabic.

They still tell how the director general [illegible] when the locust army was being formed. He told the then Minister of Finance, "I need 500 tons. That will be several years' supply."

The minister objected. "I can't convince the government that far ahead," he said. "I



"Flying Stretchs" Attack Pakistan; Also Cannot Stop a Mighty Swarm

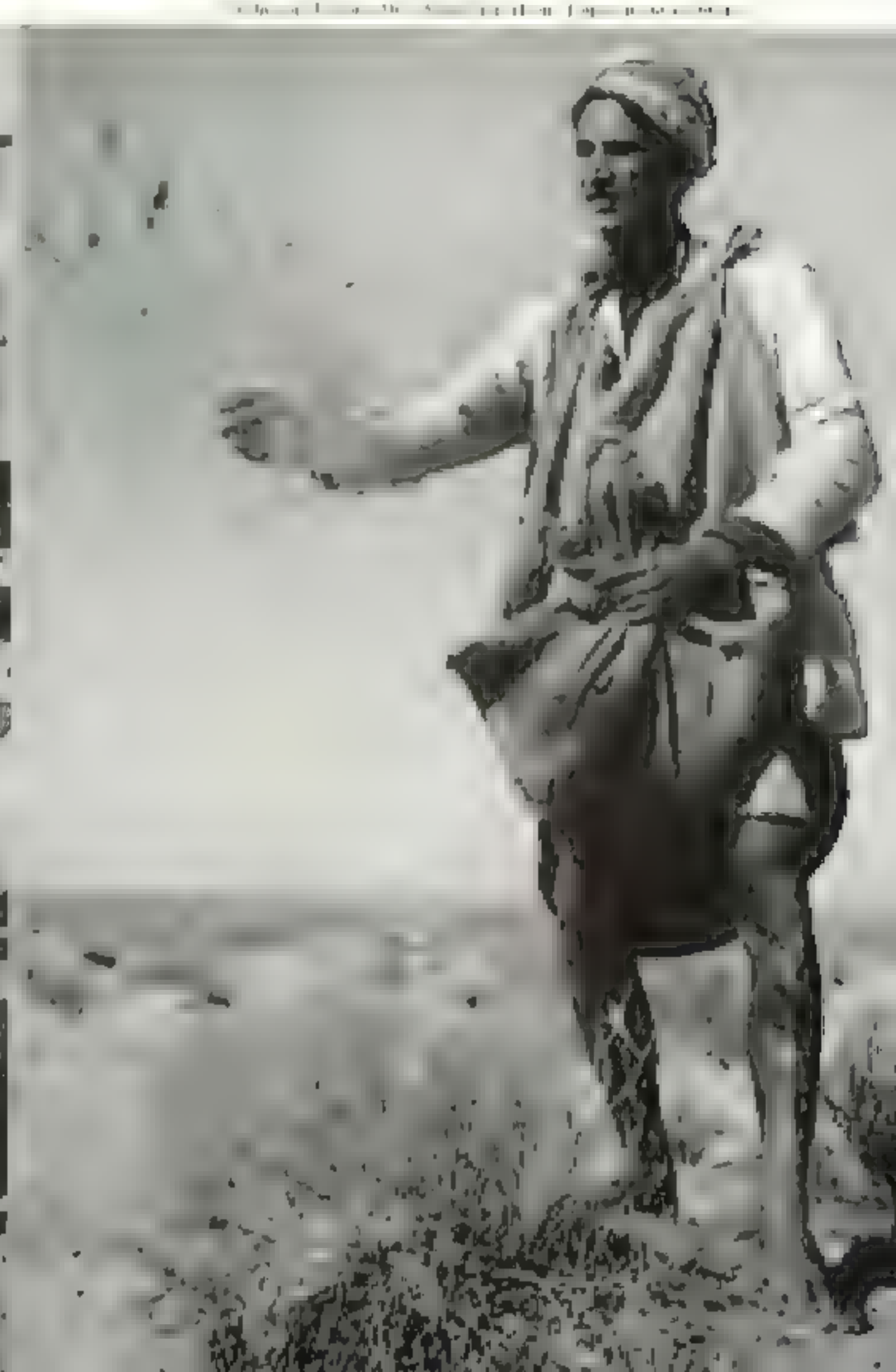
[illegible]

[illegible]

[illegible]

Locust Fighters Mix Bran with Insect Poison and Water and Sow the Bait on a Hopper-infested Desert

[illegible] Saudi [illegible] The National Company [illegible] Saudi Arabia



Camel-borne Scouts on Patrol Seek Fresh Infestations in the Hot, Dry Sands. A Ground Pattern Spreads Best

Ammunition for Iraq's Insect Weapons Moves from Warehouse to Station Wagon at An Nasiriyah

American Planes Were on Iraq Locations

[illegible]

[illegible]

A Sand-hopping Plane Dusts the Iraq Desert with Lethal Mist

[illegible] and Pakistan [illegible] as H. Rutledge [illegible] watch the operation

[illegible] myself [illegible] in other words power [illegible] this requisition is impossible.

[illegible] I would need [illegible] less [illegible] but plus is to kill locusts.

[illegible] the chemical.

He is one of the few Near East officials who took the locust fight out into the blank spaces [illegible]

[illegible] and I got word back telling them [illegible]

Now, every local agricultural supervisor is his own locust-control officer. He [illegible] baiting and poison [illegible]. He has authority to hire men to spread [illegible] he [illegible] need to [illegible] supplies at [illegible]

[illegible] each supervisor we set up a [illegible] bases with their own leaders, transport, and [illegible] I don't have to be consulted [illegible] what is needed is far in excess of what we have planned.

We watched much of that planning being done on two worn Arabic maps. One hung in Darwish's Baghdad [illegible]. Only the movements of [illegible] hatchings were shown, sinister red triangles pointing at the cultivated lands.

Desert Tracks Are *Darks*

The other man role in the [illegible] case of Darwish's chief of staff. In [illegible] of plant protection.

He is Ibna Ahmed, who earned his doctorate and mastered English, which he speaks with a Midwest accent, at Ohio State University (pages 547, 551). On D[illegible] anti-locust camp showed us a colored [illegible] but any student of cartography would [illegible] something odd. While [illegible] showed 30-odd locust control bases, there was no hint of how to get from one to another.

The reason was simple. There were no roads in this 200-mile depth of desert battleground. This is not to say there was no transport; Dhia's jeep and 50 supply trucks operated cross-country, using guides, following camel or police-car tracks. The Iraqis call any faint track a *darb*—which is not an expression of opinion but an Arab word for road.

When our Point 4 pilots, William Schaefer and Keith Anderson, began navigating by these darbs, the term caused much wry humor. There was no humor, however, in one of Dhia's desert rules of the road. The danger of becoming lost was so great that he always required at least two vehicles to travel together.

"And that goes for planes, too," the pilots agreed after their first desert flight.

Dhia's map soon had its face lifted. By kerosene lamp one night he lettered on it the name of each camp in English. The words stood square and uncompromising beside the graceful Arabic script. The pilots were pleased as the names emerged—until they read them: Twal al Hashash, where the first aerial spraying was done; Khadara al Ma, an advance base for the planes, Qasr Abu Ghar, Samuh, Al Busaiya. . . .

"Something tells me they're not in the atlas my wife has at home," one pilot said to the other with a smile.

Bedouin Guides Lead Patrols

Unwittingly they had touched on an old Iraqi mystery, how one stretch of desert indistinguishable to our eyes from all others can be named, known, and found unerringly by nomad tribesmen who are only confused by a map. The desert war against the locust depends to a large extent on guides who perform this trick again and again.

No nomad but a Baghdadi, Dhia had to place and oversee a dozen remote camps like Al Busaiya and twice as many in scarcely less isolated areas.

During locust months Dhia lived only to kill the insects. A vastly tolerant and friendly man, he became a different person at sight of a live locust.

On the way to Al Busaiya we followed a trail full of sand traps. Dhia bulled his jeep through perhaps twenty in a row, nitting the edge of each at exactly the speed to skid and rock him through.

But in the center of the next trap he jammed on the brakes, slewing the jeep up to the hub caps. He had glimpsed a field of hoppers and wanted to examine them. Digging out the jeep could wait.

Dhia was host and quartermaster to the U. S. Point 4 Regional Locust Control Project. Among other things, this involved setting up a traveling mess. He was surprised when the men appeared to enjoy the diet of fresh chicken, lamb, and boiled rice.

"Why don't you fellows tell me what you really want? I know this isn't what you'd eat at home. Just what would you like?"

The pilots, not wanting to take advantage of Arab hospitality, shrugged. The answer came from the third member of Iraq's anti-locust general staff, entomologist Albert Meymaris.

"Drugstore Coffee" Comes to Iraq

"They'd like 'dishwater,' Dhia. Remember the coffee you used to get at the corner drugstore across from the campus?"

That's how American-style coffee came to the locust camps.

Albert had studied at Texas A & M at the same time the director general attended. His feelings about his alma mater are best expressed by the big silver belt buckle he wears in the field. It says in block letters: TEXAS AGGIES.

Albert is the scientist of the Iraq locust-fighting army.

Would you like to see a sample of locust eggs? They are in a cigarette tin in his shirt pocket.

Or a black locust arrested in its development by a bath of aldrin? He carries specimens of these in a pair of watch crystals that make a transparent case.

Or perhaps a full-grown locust? Albert has a glass tube containing a yellow-winged adult. Sharing it is one of the world's most lethal insects, a scorpion caught outside our tent.

Albert briefed us on our foe, the Desert Locust (*Schistocerca gregaria*, page 558) during an early patrol into the desert, using the "yellow peril" as his classroom. The peril is his jeep, which came, he says, equipped with dual forward speeds: too fast, and too slow.

"Don't take anything for granted with the locust," Albert shouted from the front seat. "The insect goes through a number of stages, and he's fussy in each of them. Unless the humidity and soil and temperature—even the wind and his food—are right, he doesn't develop at all. But here conditions are too often agreeable. He grows and travels. Locusts have traveled as far as 900 miles in 14 days."

Locusts—Eggs to Winged Hordes

Our own journey was interrupted here by a wait at the single lane pontoon bridge across the Euphrates at the last town on our route, An Nasiriya. We waited for a camel loaded with date-palm seedlings; for a herd of fat-tailed sheep; for veiled women carrying water in shiny kerosene cans. Then the white-coated policeman warbled on his whistle, and we moved on.

"First the pest is an egg," Abert [illegible]. "[illegible] 50 to 100 [illegible] cluster like [illegible]. This stage lasts up to 4[illegible]. Then it is a hopper with three pairs of legs. It is black [illegible] and here is the important thing: it can't [illegible].

"[illegible] it [illegible] with a [illegible] [illegible]. The [illegible] we get them. We feed them poison [illegible] with bran and [illegible] by hand. Or [illegible] planes spray them with aldrin-and-water solution."

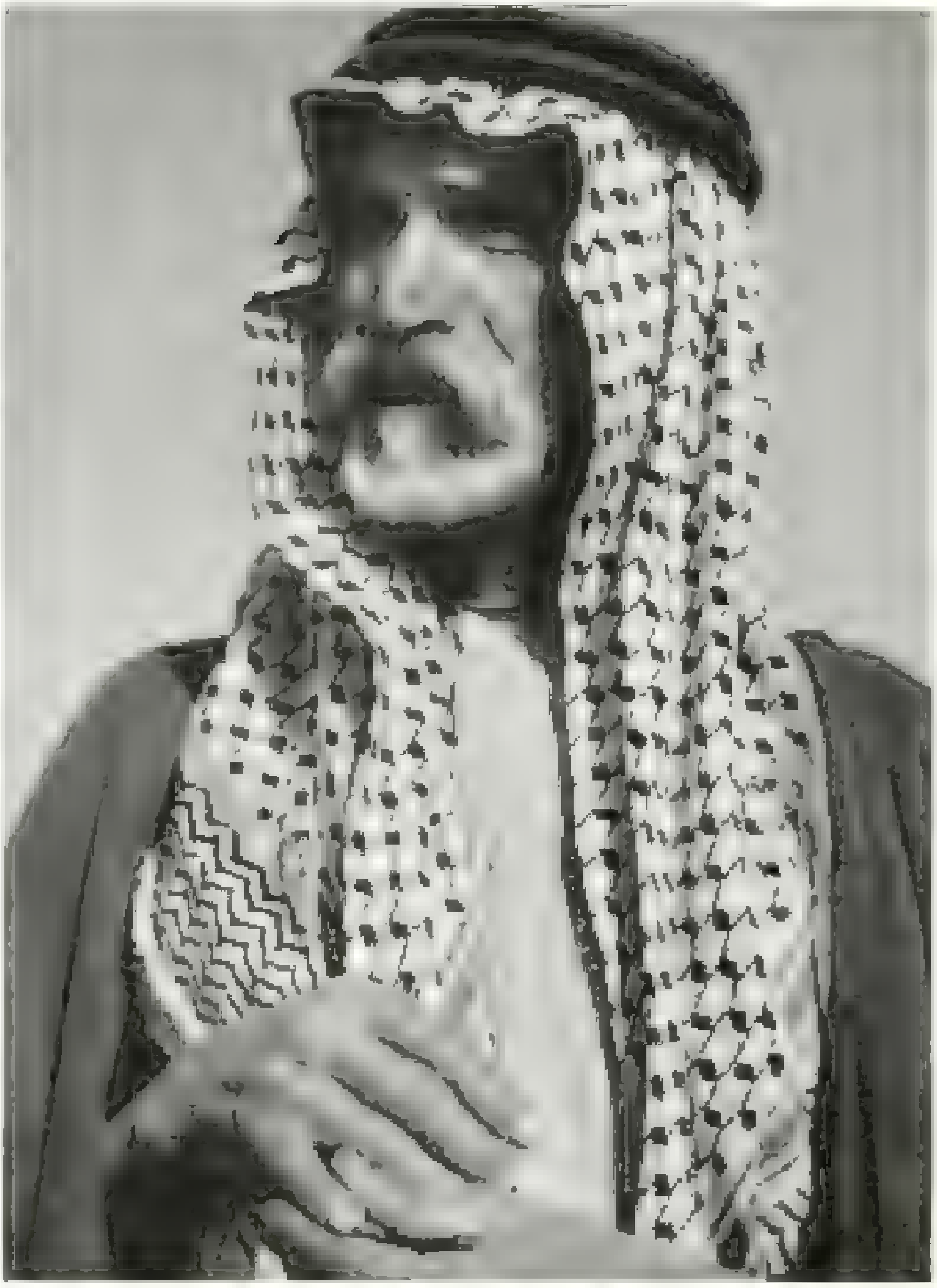
[illegible] a diversion [illegible] grasshoppers [illegible] with. We slowed down for a camel herd trudging across the track. The herder, a robed Bedouin with a shiny [illegible], rode atop the tallest camel. He tried to guide his beast out of the way, but it had another idea.

In the track the camel halted with a jerk, and the herder slid down its neck like a child [illegible]. [illegible] camel [illegible]. Abert [illegible] shook his finger at him.

"[illegible] fine camel riding to show our visitors."

But he [illegible] his favorite subject again. "When the locust first [illegible] it is pink and its two pairs of wings are grown. Later, when it can reproduce, it is yellow. These are the most [illegible], for [illegible] devouring [illegible].

"I've never been so [illegible] as I was one morning in 1945, not far from here, when I [illegible] a [illegible] of the [illegible] block the sun from rising. I knew that this was [illegible] and that I [illegible] a few [illegible] before it reached my [illegible]. Since then we have learned how to [illegible], but what an awful feeling that was then."



Bedouin Patriarch Scans the Horizon for the Enemy

[illegible]

"There aren't two species of the desert locust as we once thought—one [illegible] solitary, the other a ravening horde," Abert [illegible] after a pause. "There's only one [illegible] we see it in two phases. The solitary locust becomes a destructive [illegible] when conditions are [illegible]."

Locust Is a Dr. Jekyll-Mr. Hyde

The entomologist explained that the insect, [illegible] under normal conditions, is a grasshopper of quiet, almost [illegible] disposition. [illegible] just the proper conditions, and then a handful of grasshoppers can quickly produce a vast progeny. Soil, temperature, rainfall, and vegetation must be [illegible] right.

This Swarm in Uganda Blotted Out the Sun and the Photographer's Windshield

A typical horde moves on a two-mile front 20 miles or more deep. [illegible] days to pass, if its ranks stops briefly. [illegible] hours back winds up to eight miles. In [illegible] years three species chew up Africa from Cairo almost to Cape Town. Some swarms [illegible] each until trains cannot start.

Locusts hatched under such favorable conditions [illegible] ancestors in metabolism. Even body temperature is higher. Giving up the individualism of their forefathers, [illegible] gregarious.

There is not enough food for the horde when its members begin to grow, of course. They do not battle for what there is, but simply migrate beyond their birthplace, first [illegible], then flying as their wings develop.

This is the birth of a swarm, and a swarm is self-propagating. In Iraq, for example, there are almost always two generations of locusts moving from south to north during a year of infestation.

[illegible] a swarm is created by a single [illegible], so it often dies at a [illegible] by mischance—sometimes quickly, but usually only after several [illegible].

Some swarms inexplicably [illegible] out to sea after scouring over [illegible] feeding areas. Others blunder into cold or are shriveled by intense heat. Some end their raiding after a single generation, when their eggs lack the heat to hatch.

Ravenous Swarms Defy Man

But while they live, moving swarms are almost safe from every control device man has tried. No one can tell how big or dense a swarm will be; at a given place, or even whether it will come at all. No one can predict how hungry or disdainful of food it will be. A swarm a mile in width, say, might take 10 days to pass through an area, utterly destroying a mile-wide belt and never looking to right or left.

But even if a swarm should remain long enough for us to mobilize our forces, locusts are a tough enemy to destroy. About three inches long, this desert species is impossible to discourage once it has settled to feed, and

"They Shall Fill Thy Houses, and the Houses of All Thy Servants" (Exodus 10:6)

[illegible]

[illegible] small enough to be sold on more favorable or [illegible]

Short of the winged [illegible] however, the [illegible] is [illegible] Alone [illegible] times. Even he [illegible] of [illegible] possible [illegible] periodically [illegible] the [illegible]

[illegible] to control the [illegible] to the [illegible] place in [illegible] where it might become [illegible] [illegible]

[illegible] with a [illegible] and [illegible] real [illegible] [illegible] the first time [illegible] will kill [illegible] [illegible] out the [illegible] to the surface [illegible] we can [illegible] the Secret Chest.'

[illegible] to this dream [illegible] thousands of years

[illegible] I must repeat [illegible] that I can't offer anything [illegible] with the [illegible]

Caravan to No Man's Land

We [illegible] out of [illegible] the Neutral Zone, [illegible] Saudi Arabia.

There the [illegible] was Mohammed Ibrahim, a [illegible] [illegible] Mohammed [illegible] Sharm [illegible]

[illegible] the Neutral Zone [illegible] [illegible] 20 [illegible] [illegible] [illegible]

Mohammed [illegible]

Yellow Skin Means Grasshopper Guard Reserve

[illegible] white tents comprising the camp. Through its back flaps he looked out on a wide hollow of unmarked desert. Through those in front he saw a pile of Iran sacks, beyond which in the distance stood the tents of [illegible] Arab [illegible] The [illegible] straw matting, [illegible] on one side.

This was a real frontier post, and Mohammed welcomed us with real frontier hospitality. The veteran Iran police chief, too, followed the [illegible] his bright star of office above a red head scarf. [illegible] full brass pot. We all drank from the same tiny bowl, three sips each—not as unsanitary as it sounds, for we became convinced that boiled desert coffee is antiseptic merely by virtue of its strength.

As the server finished his rounds, Mohammed [illegible] the [illegible] one precious [illegible] in his strongbox. With an American fountain pen he wrote swiftly in flowing Arabic on the other piece, then carried the paper to the near-by police radio transmitter. From the guy wires of the short aerial hung the operator's drying laundry.

Mohammed's message warned fertile areas to the north that Belgian patrols had just reported a swarm passing 20 miles away.

Mohammed shortly became something of a hero to his American colleagues. They noted his Spartan quarters: a metal cot, thin mattress, and goat-hair blanket; a three-decker table of crate lumber; a wooden chair; the locked strongbox; a pottery water jug with a cotton mesh rag across its mouth as a filter, and two bright [illegible] rugs.

When we asked Mohammed about his adventures at this frontier base, he seemed [illegible] quite [illegible]

This suggested that [illegible] might have [illegible] things up a bit. Well, yes, Mohammed allowed, there was such a danger.

The previous week, while he was surveying a hatching area, two armed nomads had ridden up on horseback. They asked what he was doing, and he told them.

Trouble on the Frontier

"If we find out that you are really killing locusts, we will shoot you the next time we [illegible]

"The locusts are good for us when there is [illegible] your crops, but let our land alone here."

"Perhaps he didn't mean it," Mohammed finished. "Anyway, I haven't seen him again."

This recalled a recent tense visit to a near by village of tribesmen to arrange for the locust army to work across the border. He [illegible]

with dirt [illegible] straw roof.

"I arrived in the town at prayer hour and I knew it would be some time before I could do business. So I went to the tea house.

"At first I felt the place to be empty. Then three tribesmen entered. They did not order tea. Instead they stared at me. I'm afraid I stared back. You know, there's no law that you must check your artillery when you go into a tea-house, and each man had a rifle.

"They [illegible] cigarette lighter. [illegible] I thought [illegible] other [illegible]

[illegible] tribesmen [illegible] killed our camel."

This demonstration [illegible] the harmlessness of the [illegible]

Wingless Infants Start Life Block

Before she dies, the female Desert Locust [illegible]

"We found out the poison you showed us isn't what you use at all," retorted the second tribesman.

"When some of our camels died this month, they had worms in their brains. Until you came, they never had worms."

[illegible] gun to stir about, and I guess the tribesmen thought it wasn't cricket [illegible] their own tribe [illegible]

"Operation Sandstorm" on Easter Sunday

[illegible] from our border forces [illegible] Easter [illegible] This was a broad front of hatchings from an unexpected tide of locusts that whirred across two international boundaries while our air arm was working elsewhere. On the ground the [illegible] crews had been mustered.

On our planes rested the responsibility of stopping the forward echelons of the new invasion as it moved by [illegible] At least it had been moving [illegible] flew a dawn mission on Easter morning against the advance [illegible]

This turned out to be one of the most dangerous [illegible] storm was on the way. Before the day was [illegible] to disappear in a universal gray as gusty winds [illegible] camp and the anchored Piper Cubs.

[illegible] began before sunrise in defer[illegible] heat we expected. Reveille [illegible] at 4 [illegible] Flying [illegible] photos.

William B. Mobee, of Elko, Nevada, who [illegible] in the course of 20 years' locust fighting, was already up, dressed, and ready for work. [illegible]

technical director of the Point 4 Regional Locust Control Project, sent from the U. S. Department of Agriculture's Bureau of Entomology and Plant Quarantine (page 558).

That Easter morning we had a cheerful breakfast—scrambled eggs hot on a big white platter which had refused to break through 1,200 miles of jeep riding.

Before we were finished, the camp's station wagon ground out into the dunes. Target area for today, located the previous afternoon as we had moved toward Al Busaiya, was a long drive away. The station-wagon crew, a supervisor and six workmen, were going out to mark it. Yellow-and-white nylon flags on stubby bamboo poles plumed their vehicle. These they would plant at the corners of infested areas so the planes could see where to spray.

Target for Today

The enemy were young black hoppers, spots on the sand now no longer than a thumbnail, and only a quarter as wide (page 559). They made a shimmering, moving veil across the pink face of the desert, moving in one direction, growing, eating, spreading. Here their diet was wild desert brush. Still wingless they could be killed easily.

Riding out to the scene of action, we were delayed in the first streaks of dawn by a baby camel asleep on the track.

The animal lay motionless, a bundle of patchy blond fur. Finally, pipestem legs, a twisted neck, and a swinging tail untangled themselves. The baby lurched awkwardly to his feet and began to amble along, just ahead of our bumper.

His method of locomotion was spectacularly disorganized. It was as if four legs were too many for a baby camel, and after each step he had to stop to choose carefully which leg he should splay out next.

All over the desert, as our convoy moved, other locust-control convoys were traveling too. We alone had the planes and aldrin, but otherwise our equipment was similar. Except for an occasional police truck, all the traffic in an area as big as North Dakota consisted of locust-fighter transports. Their communications reached back by police radio to provincial agricultural offices, and still farther back by telephone to Darwish's sunny office on the Baghdad main street still named for Haroun al-Rashid, caliph of the *Arabian Nights*.

We reached a fork in the track. The pilots, leaving long after we did, had asked us to stop a little past this turning so they could pick the correct fork from aloft. The first of our two jeeps, driven by Dhia and carrying locust fighter Malee, was already parked.

Soon two specks that were our planes hummed out of the horizon. Bill feared the flyers would fail to see our desert-stained caravan, and he was right. The specks grew larger, then veered away.

Bill snatched a white head scarf from one of the party and waved it for half a tense moment. The first plane's pilot saw it and came toward us; soon the other followed. Then, to show that they, too, were relieved, they came in low, close behind us.

We must have looked a bit apprehensive until Bill, who knows his planes and men, set us at ease with the right remark.

"Gives one a start," he said, "to see an airplane in the rear-vision mirror spoiling to pass."

Ten minutes later we found the first of the four patches of hoppers, its flag markers whipping in the wind. Between the first and second marked fields Bill had selected a strip of gravel to serve as landing area for the planes. We rounded up the ground transport there first, Dhia leaping out of his jeep and shouting that byword of Arab enterprise "*Yallah!*" equivalent of "Let's get going!"—to the crew.

Planes Move Against Invaders

Finally, jeeps and trucks stood wheel by wheel along the edge of the improvised airstrip. As the planes made their approach, Bill threw a handful of sand into the air to show them the wind direction. The aircraft settled down together in a double plume of sand.

Huddled in what seemed the middle of the world, the planes and vehicles were the only visible objects more than a few inches high. Casting long shadows in the early sun, they appeared utterly alien.

Before we came, the desert had been alone and quiet. Now the grinding vehicles, taxiing planes, and human beings seemed more than life-size, despoiling something untouched for centuries. Even the slush of water as the aldrin solution was mixed sounded loud and out of place.

Bill Malone did the mixing himself, 10 tins of water measured with an old kerosene can, and half of a smaller measure of pungent aldrin. As Dhia watched Bill, his hands dripping, climb on a barrel to reach the high mouth of a plane [illegible] "Bill he makes us all ashamed."

Each plane took four loads of lethal solution that morning. Each shuttled across the horizon spraying between the flags for more than an hour (pages 552, 553). The ground crew, many of whom were farmers from the cultivated area, men with no mere academic interest in locust control, stood in an approving row watching from the landing strip.

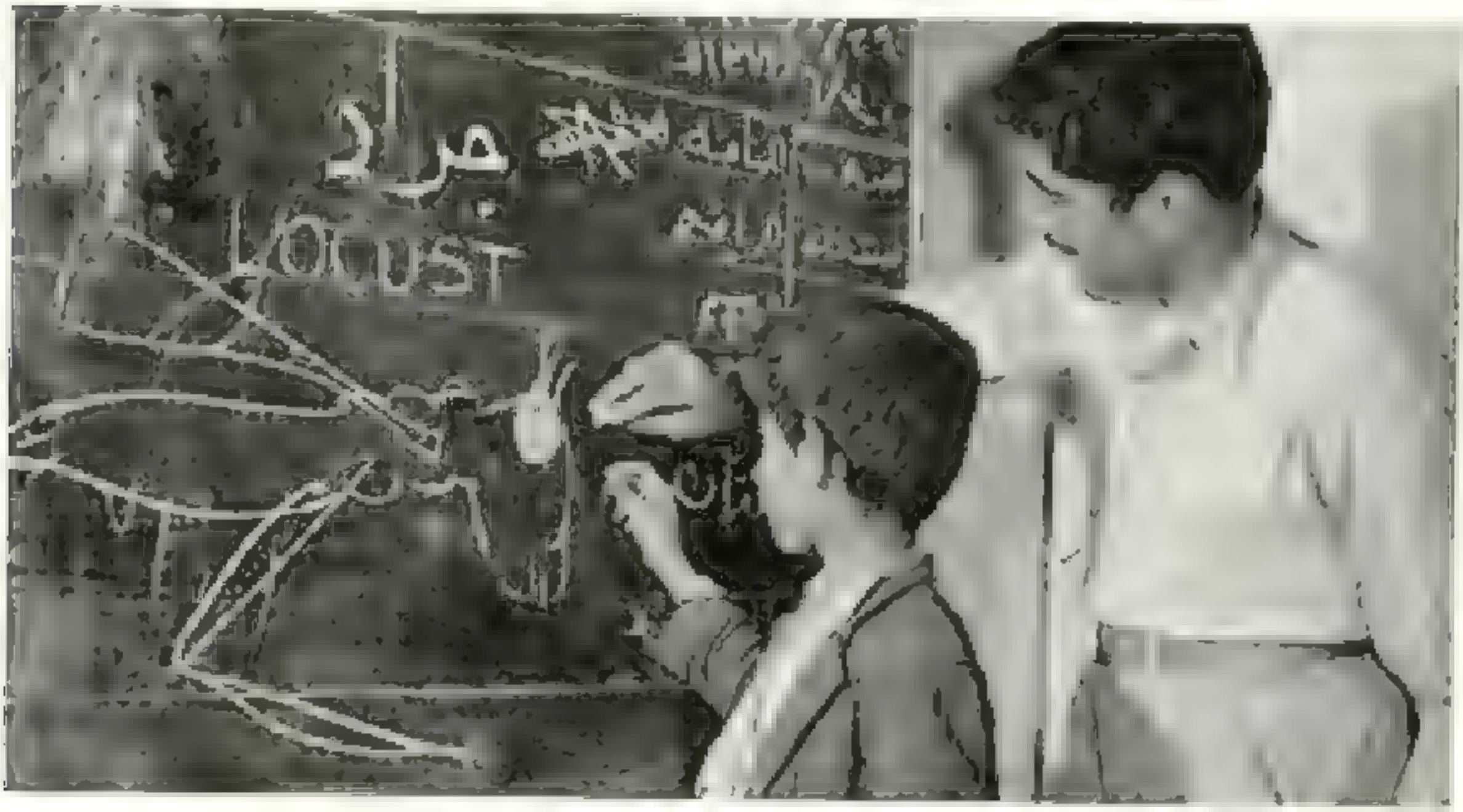
"See," said the driver of a truck, "he never

An Iraq Class Trains Longest Scores

[illegible]

Trackburns Circle Burbles the Enemy

[illegible]



misses. He starts this time on the row right next to the last one he sprayed. I thought maybe he would forget a row, but no, he covers every one as thoroughly as we could on the ground."

This tribute was for Schaefer, finishing the field of hoppers nearest the trucks.

We drove over to get a bug's-eye view. Because the planes were working from such a low altitude, we parked the jeep well away from the flags and walked in to lie flat on our stomachs at the edge of the marked area, steadying our cameras with elbows braced in the sand. We intended to stay away from among the hoppers, but they had spilled over the boundaries in the hour since the flags were placed. Before we knew it, Dhia had moved the flags back, and we were 30 yards inside the target area.

Schaefer had started his next run in our direction with only a slit of sky showing under his wheels. It was no time to stand erect.

It seemed impossible that the fast-approaching plane did not intend to land on us. Quickly it grew too big for the camera finder, too big for the eye. Then we were overwhelmed. The noise was deafening; we shoved our faces in the sand and plugged our ears with our fingers.

Caught in a Reeking Rain of Poison

The reeking poison fell, a fine, drenching mist hardly visible but feeling like a slap from a wet dishcloth. Slowly we got up, hair and clothing redolent, droplets in our ears and on our glasses and camera lens.

Before we could exchange words of sympathy Schaefer was back from the other direction—another flop, another picture, another aldrin bath. Then, mopping ourselves, we jeeped back to the landing strip, picking dying black hoppers off one another.

From the strip, spraying looked extremely dangerous. Almost from the first take-off the wind had buffeted the planes with strong, fitful gusts. This is the most feared hazard of the crop-dusting pilot, and the strain began to show on the fliers' faces as they reloaded their tanks.

After the first run pilot Anderson took his shirt off, perspiration dripping from his chin. After the second, Bill Malee stood beside the biggest truck, sucking a cold pipe and squinting minute after minute at the skimming planes.

"I don't like this. It's not good to spray in this wind. It's like waiting for—waiting for—something," he finished lamely.

The burden of waiting for the planes to return grew heavier. Even the crewmen were silent as time and again a plane seemed to hit the ground. When the wind rose, the plane steadied itself at 10 feet. Suddenly the wind would drop, and the sound of the engine being gunned as the plane lost precious altitude would reach us. The roar always seemed too late.

We were thankful when the job was done; no one could have borne another trip. Both pilots were soaked with perspiration now, and they tried before they took off for the base to explain their nervousness.

"It's So Easy to Crack Up"

"It's that wind," one said, as though the rest of us had been unaware of it. "In weather like this, the plane gets bounced up. When you try to put her nose down again it's so easy to crack up, if you put it too low."

By the time we reassembled at camp the wind had become a gale. Now we were enfolded in a muffled world of whirling sand. When the sun chose to shine again, trucks and planes would roar out to kill more locusts. But not today.

In Iraq's Parliament or our Congress in Washington, D.C., sheiks and senators might inquire into the worth and meaning of international cooperation to increase the world's living standard. There it may be hard to define "Point 4 Mission." Here it is so easy.

Here, Point 4 is men from two nations squatting around a lamp, planning campaigns against invading insect hordes on a bilingual map. It is men working long hours in remote wastes to conquer one of man's oldest scourges. It is pilots risking their lives to help prevent famine.

Point 4 is an American flyer saying, "Let's see, Bill. You say the hoppers on one acre will grow up to eat the food on 200 acres. We sprayed 200 acres this morning. That means we've saved 40,000 acres up north."

New Home for Victory

Point 4 is the Iraqi entomologist with a locust specimen in his palm, its feelers curled about a finger, saying, "I checked the field you sprayed yesterday, Schaefer. Every hopper is dead."

It is Bill Malee, sitting like a Bedouin with boots tucked under his haunches, fingering his belt buckle, souvenir from a grasshopper campaign in Nevada, and musing over the map:

"If this wind changes, they'll come back again, and there'll be trouble in Afghanistan, too. I wonder how many people know we could [illegible] this. Dhia—stop them for good."

And Point 4 is pilot Schaefer, looking up from the letter he is writing to his wife and sons and saying casually, "I thought we were out here to help keep people from starving. I'm hungry—isn't it chow time?"

The Society's Hubbard Medal Awarded to Commander MacMillan

FOR outstanding Arctic explorations from 1908 to 1952 and for valuable services to geographic education and science, the National Geographic Society has awarded its highest honor, the Hubbard Medal, to Donald Baxter MacMillan, Commander, United States Naval Reserve.

The presentation was made by Dr. Gilbert Grosvenor, President of the National Geographic Society and Editor of its Magazine, at Constitution Hall, Washington, D. C., on January [illegible] 1953. More than 4,000 members and friends of the National Geographic Society witnessed the ceremony, which preceded a lecture and motion pictures by the noted explorer.

Sharing the platform as Commander MacMillan received the medal from Dr. Grosvenor (above) were Mrs. MacMillan, who has participated in eight of her husband's voyages, and [illegible] his [illegible] of Arctic explorations [illegible] Rear Adm. Richard Evelyn Byrd, USN (Ret.) (in uniform), and former Navy Lt. Comdr. Eugene F. McDonald, Jr. Both played important parts in the 1925 National Geographic Society-United States Navy MacMillan Arctic Expedition, the first to explore the Arctic land and sea with airplanes.

Commander Byrd [illegible] this expedition as commander of the naval [illegible] his [illegible] history-making flight over the North Pole the following year.

Mr. McDonald, now president of the Zenith Radio Corporation, was MacMillan's second in command and [illegible] in charge of the radio work.

44 Years of Exploring

In presenting the award, Dr. Grosvenor pointed out that Commander MacMillan's achievements north of the Arctic Circle have been outstanding and continuous for 44 years.

"I can find no parallel in history," he said, "[illegible] whose active devotion to solving the geographic secrets of the Arctic has continued for so long."

Dr. Grosvenor [illegible]

[illegible]

Hubbard Medal Is Named for The Society's First President, Gardiner Greene Hubbard

[illegible]

the future discoverer received from women and [illegible] from crowning in Queen Victoria's Maine, their dear sailors' exploits, as soon [illegible] the stroke of exploration. The explorer [illegible] by Lieutenant Robert E. Peary.

A few months later, Mac Millan was [illegible] the Arctic North, a trusted and [illegible] member of Peary's expedition which discovered the North Polar Ice Cap.

Mac Millan returned again [illegible] to the Far Northern [illegible] on the [illegible] and [illegible] Mac Millan's [illegible]

Commander Mac Millan and the National Geographic Society have the great pride of having presented to [illegible] that gallant Virginia [illegible] Admiral Richard Evelyn Byrd.

Admiral Byrd, who received the Hubbard Medal in 1929, recalled that Mac Millan was being regarded as a [illegible] and a lover against attack. Now he [illegible] unexpected [illegible] potential [illegible] attack.

"The man, he said, who has shown us [illegible] about the truth of that [illegible] Commander Mac Millan, thank to his 24 expedition [illegible] for the North.

Admiral Byrd and his [illegible] also paid tribute to Mac Millan for their business [illegible] through the Mac Millan Memorial Eskimo School at Nain, Labrador, more than 200 Eskimo boys and girls have received education.

In presenting the medal, Commander Mac Millan [illegible] over the rough [illegible] with [illegible] of [illegible] the Eskimos [illegible] three of these years [illegible] of the outbreak [illegible] Mac Millan [illegible] the Eskimo [illegible]

And as the years have gone on, [illegible] I did, it occurred to me that [illegible] was not [illegible] reward or honor [illegible] I was [illegible] to [illegible] that was my compensation. That was my reward.

As the President of The Society, the [illegible] honor Commander Mac Millan [illegible] Medal [illegible] Admiral Byrd.

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In Mexico, the Society and the Institute [illegible] uncovered the oldest [illegible]

[illegible] Society and the U. S. Army Air Corps [illegible]

[illegible] The Society [illegible] Society and the Royal Geographical Society [illegible]
Museum in [illegible] and [illegible]
[illegible]
[illegible] Yellowstone National Park in California.
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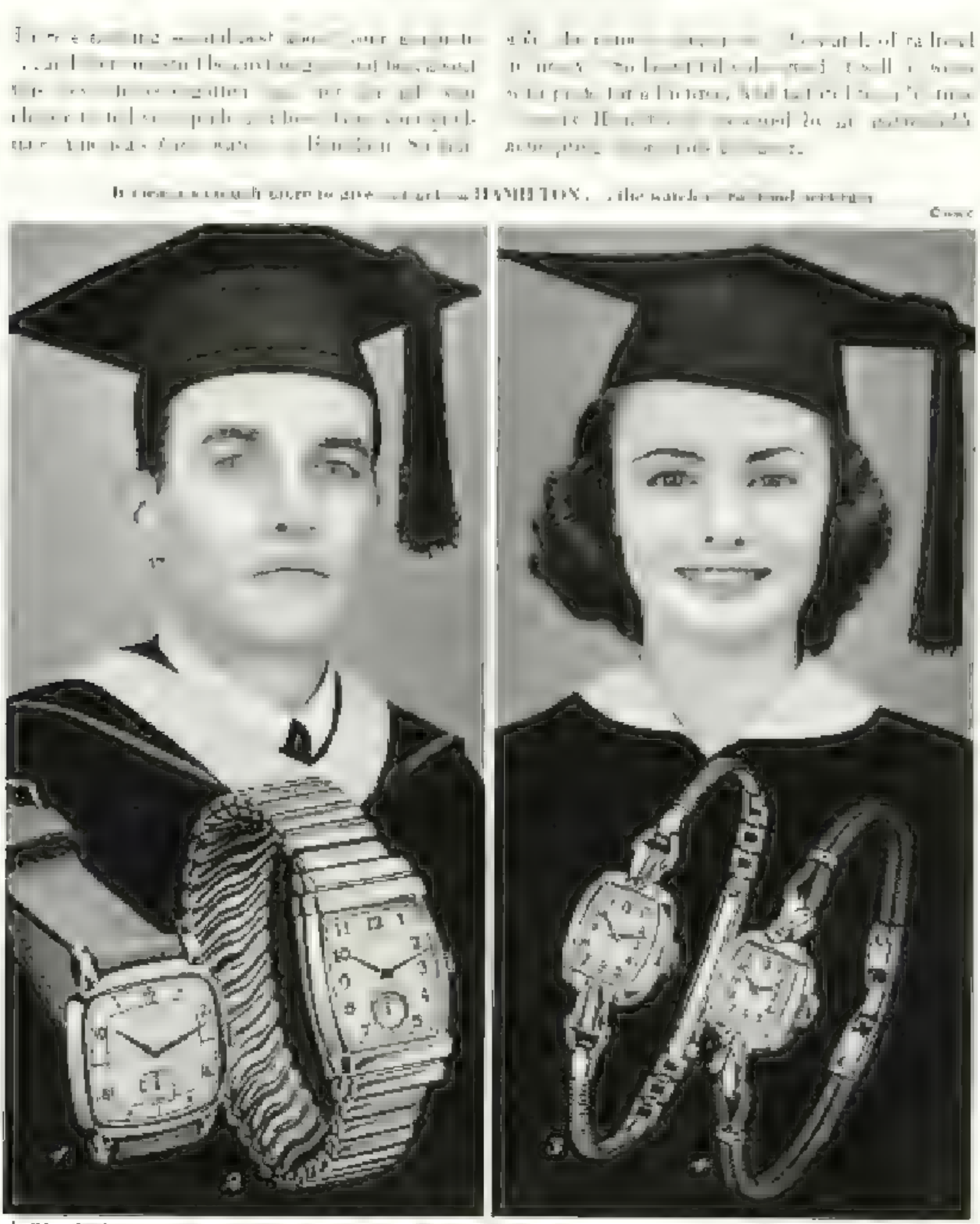
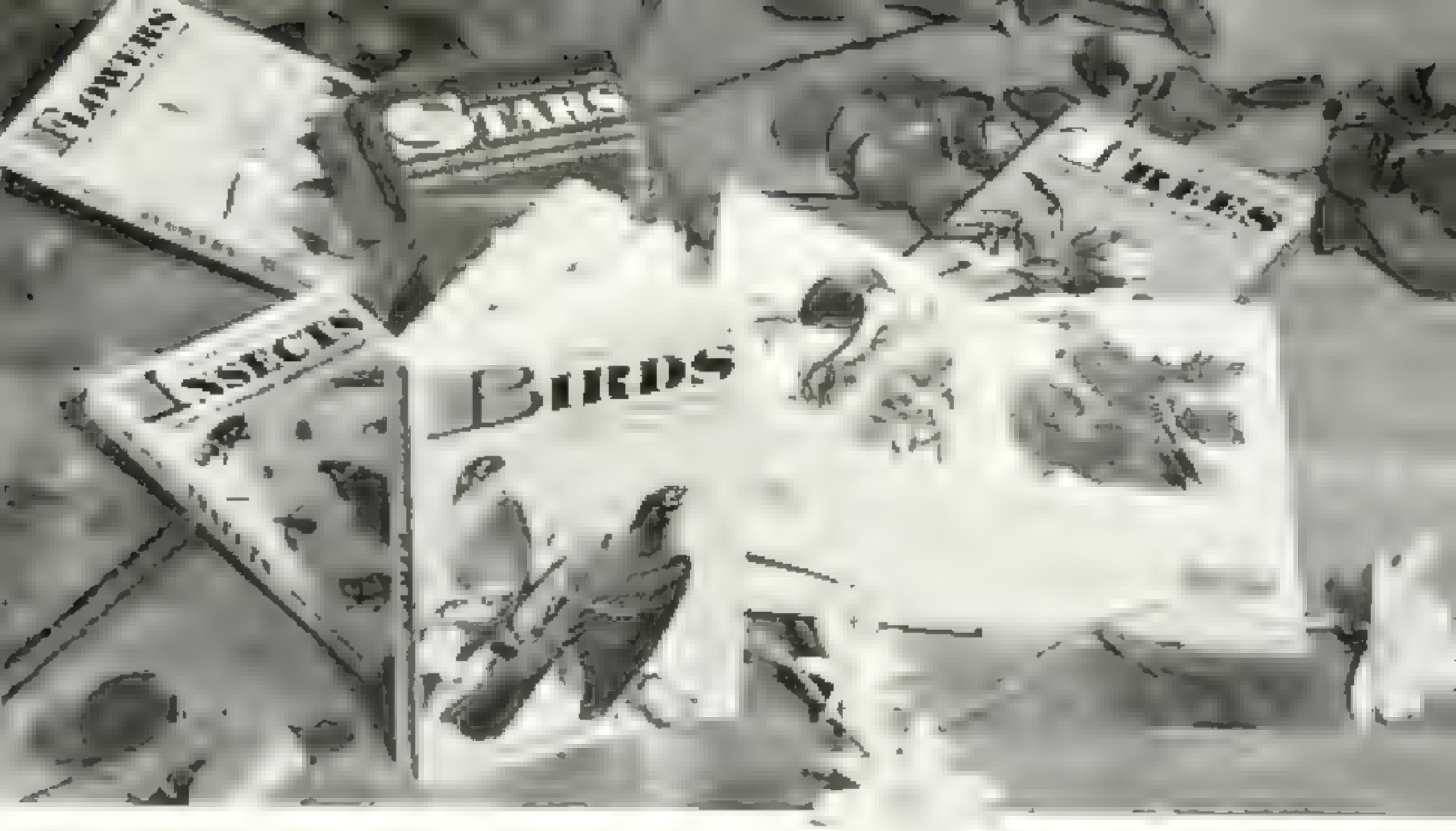
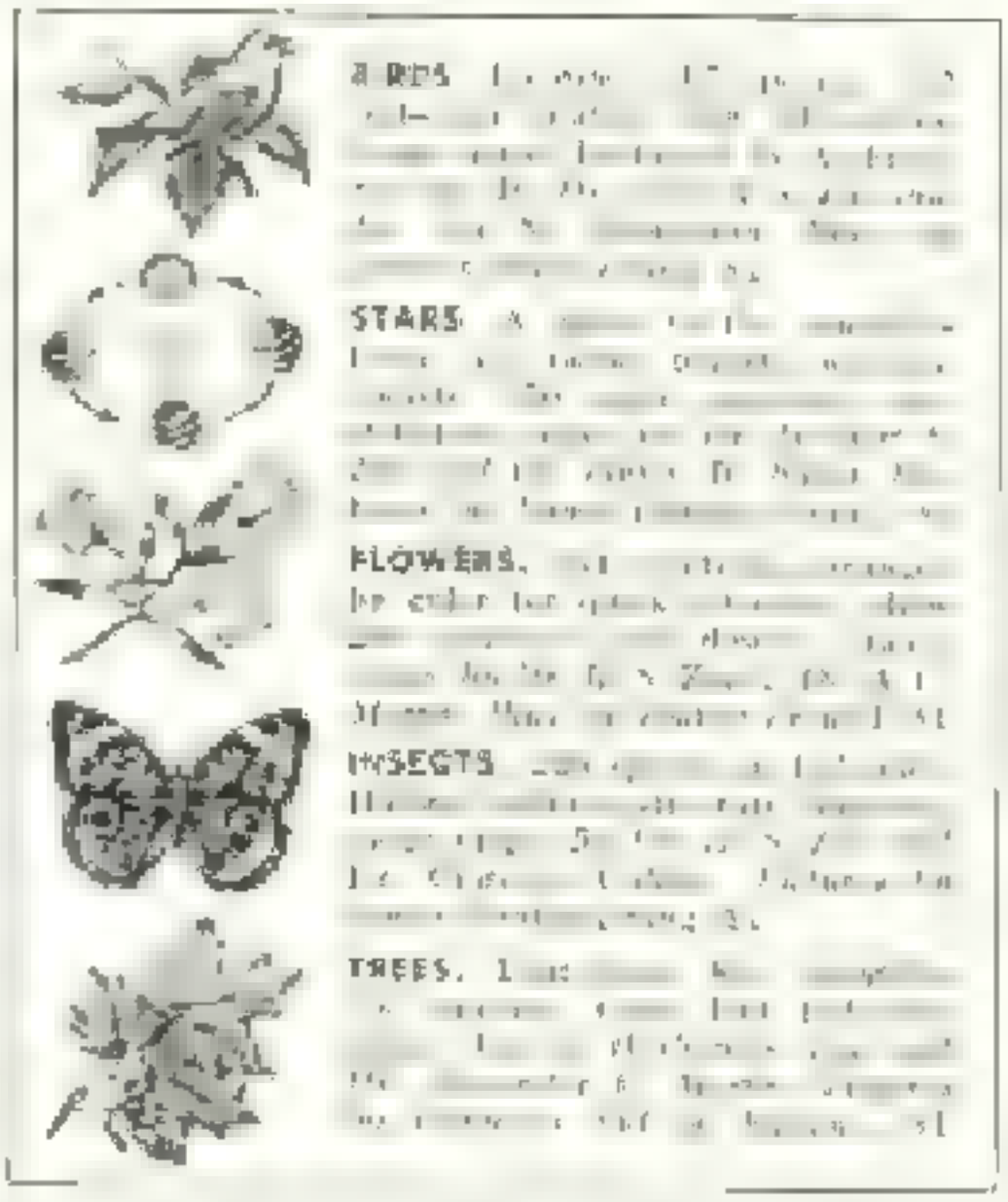
Doesn't your graduate deserve a Hamilton watch?





How can these magnificent Nature Guides be sold at only $1 each?



[illegible] Nature book [illegible] a [illegible]

Each has [illegible] color plates, [illegible] to be [illegible] [illegible] the [illegible] [illegible] the [illegible] [illegible] the [illegible] [illegible] Science.

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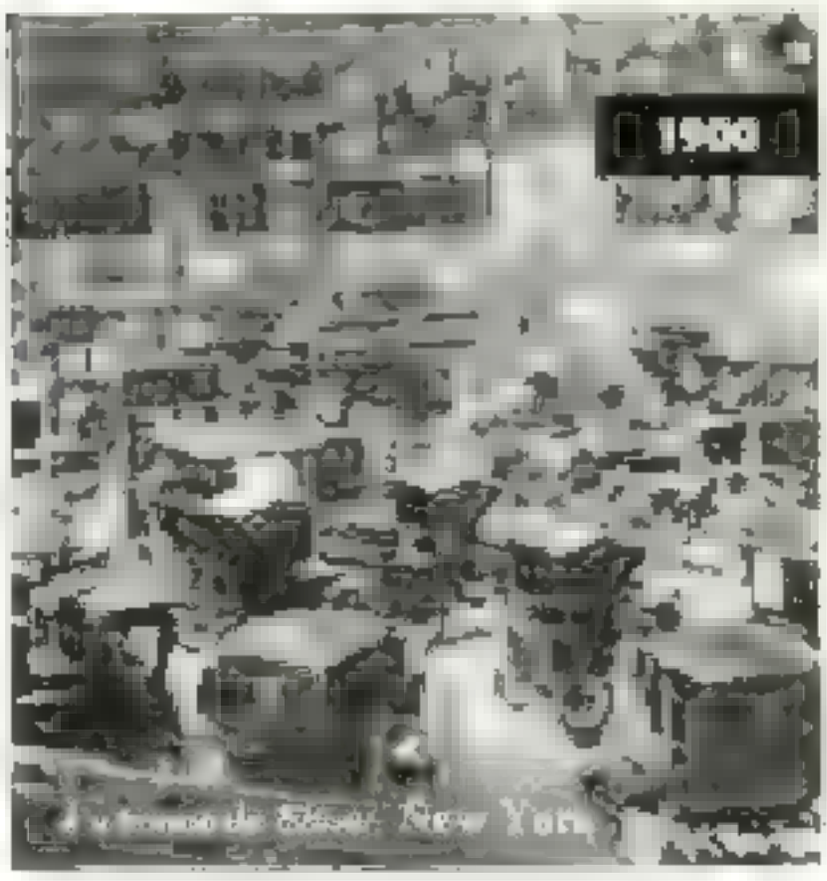
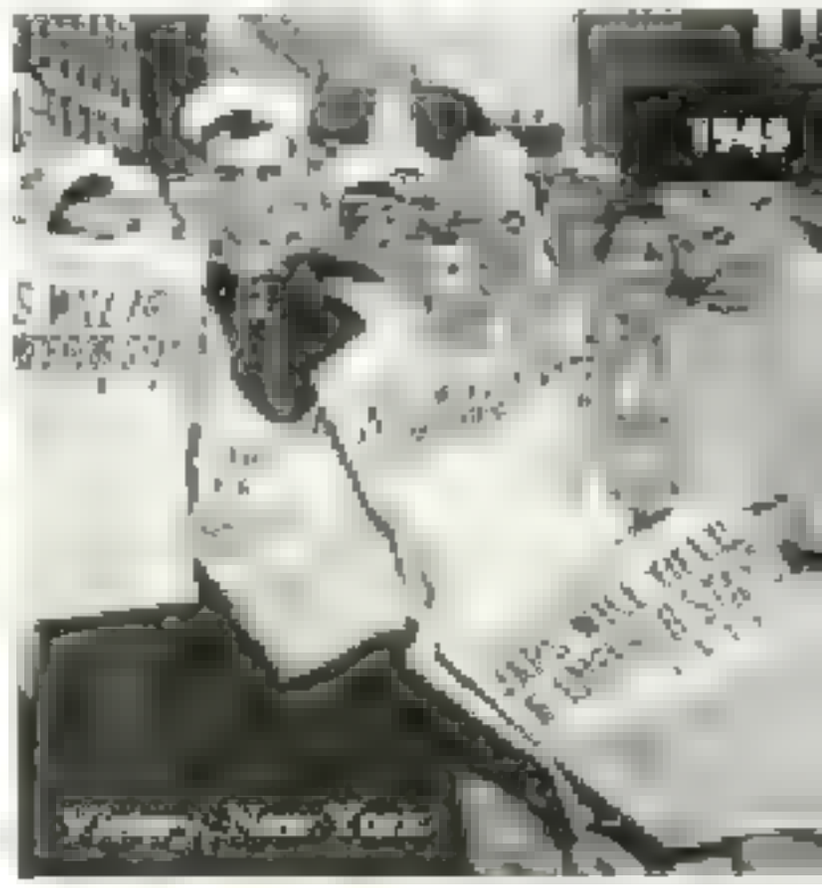
[illegible]

[illegible]

On Broad [illegible] The Home [illegible]



[illegible] enterprise and progress of the nation . . . has paid out more than a billion and a half dollars in claims



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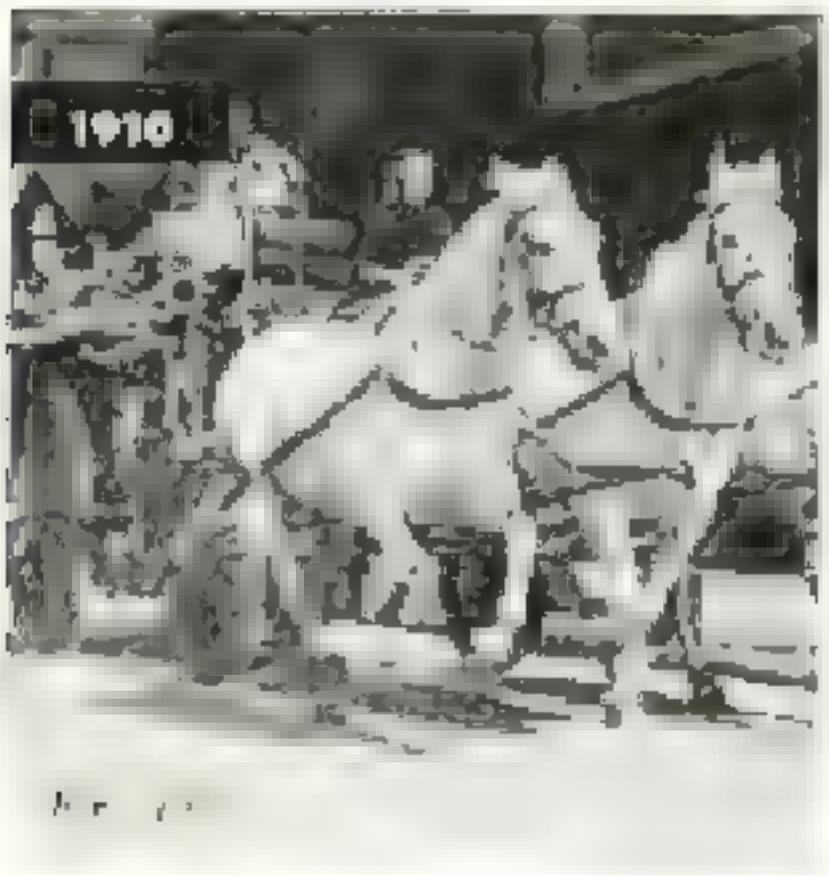

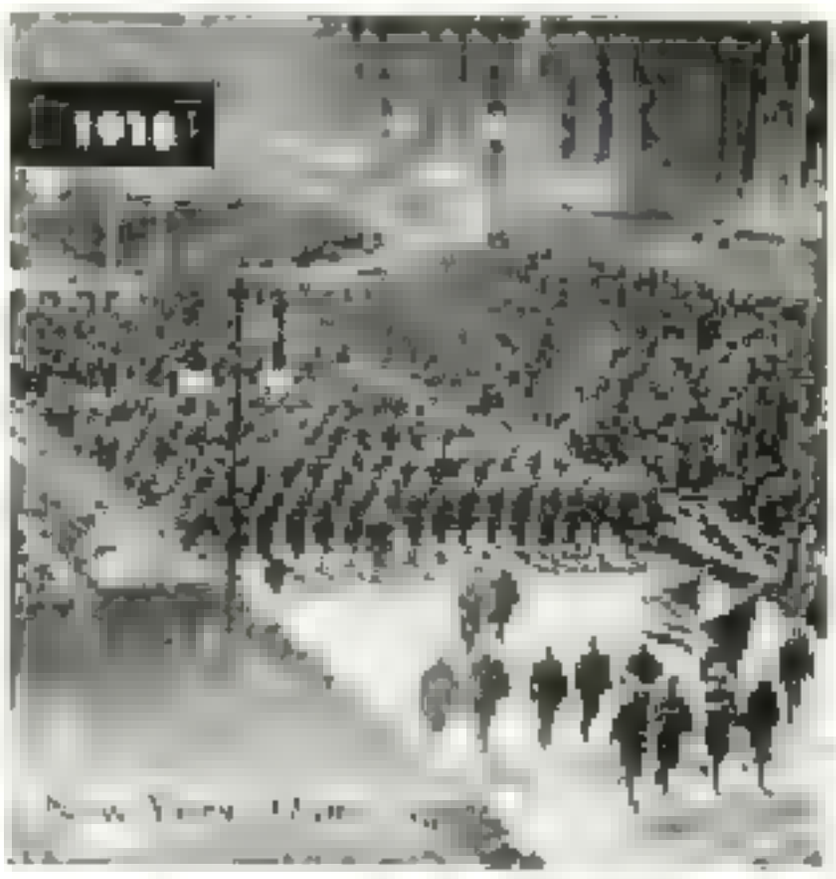

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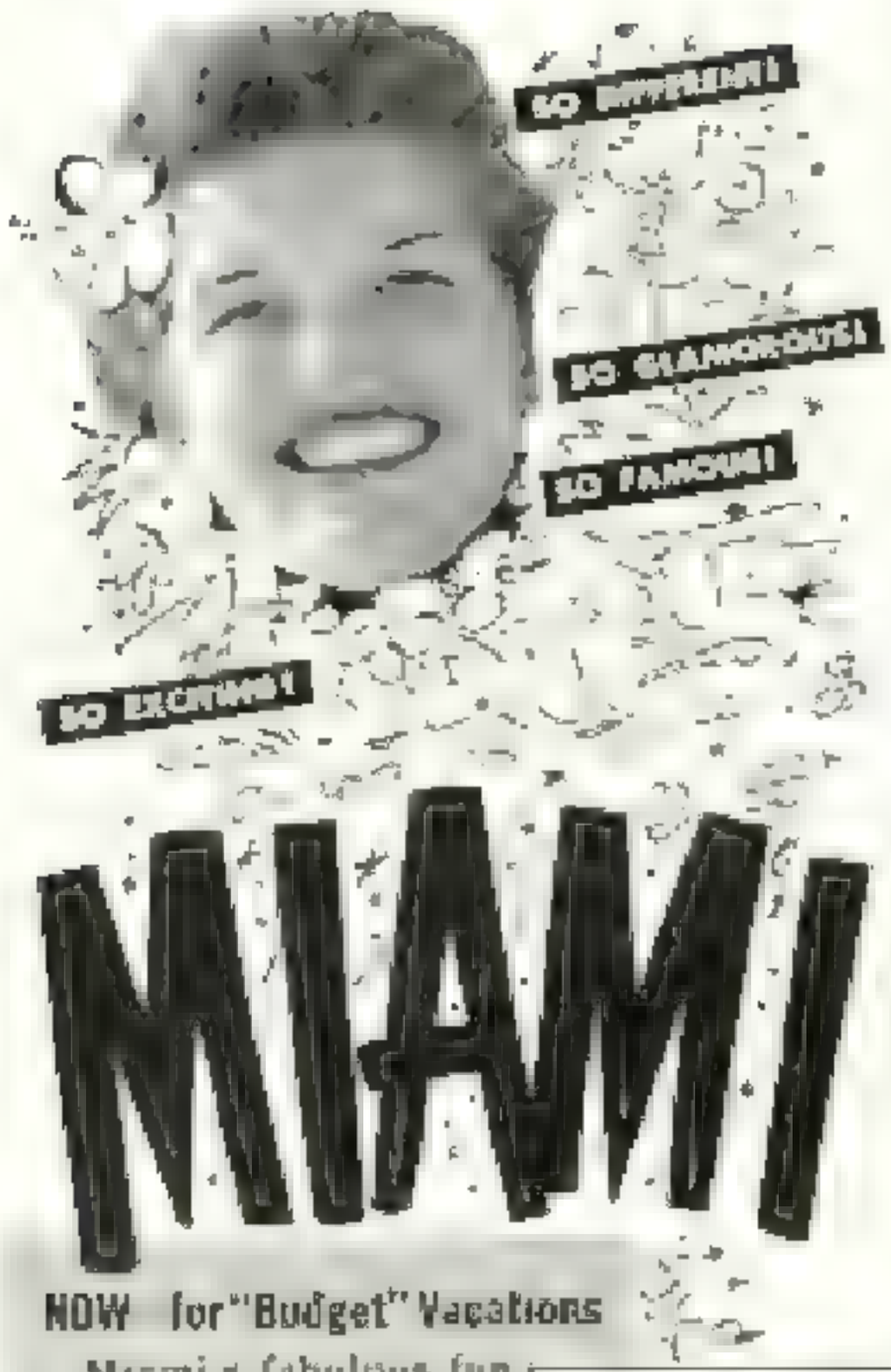
Insurance Company



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NOW for "Budget" Vacations

Miami's fabulous fun facilities are yours in Spring and Summer . . . at rates within reach of every family budget!

SUMMERS are SUPER!

YEAR-ROUND FUN

Miami's happy holidaysh have their choice of

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- miles of ocean beaches
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- 600 000 [illegible]
- pari-mutuel sports
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40c per quart [illegible]

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WOLF'S HEAD

MOTOR OIL

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Famous Yellowstone, where Nature created a magic world, is known to everyone. Grand Teton National Park, Yellowstone's neighbor to the south, is a region of primitive, majestic beauty "where mountains look like mountains should."

So—if going to Yellowstone this summer—include the Tetons. Union Pacific will take you direct to either Park in restful comfort.

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UNION PACIFIC RAILROAD
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Also send information on Pacific Northwest National Parks and Pacific Northwest Vacation Land

If student, check here ☐ and indicate school or college _____

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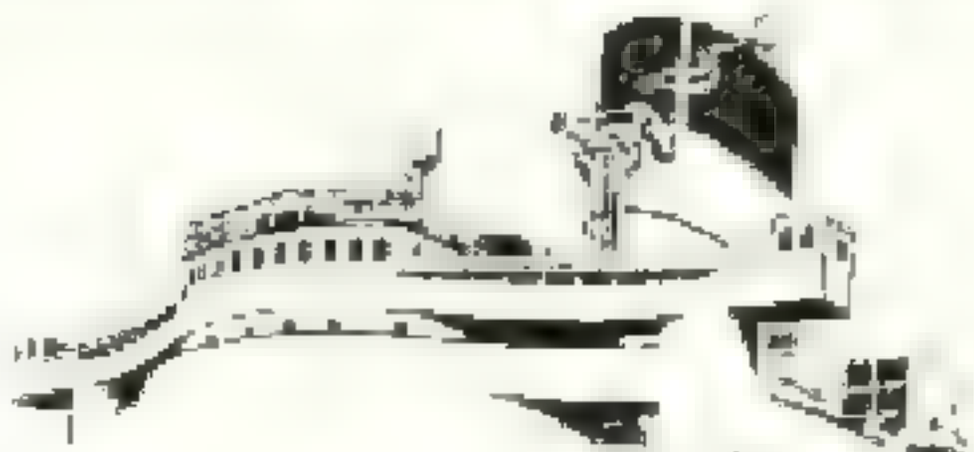
LENSES
ACCESSORIES

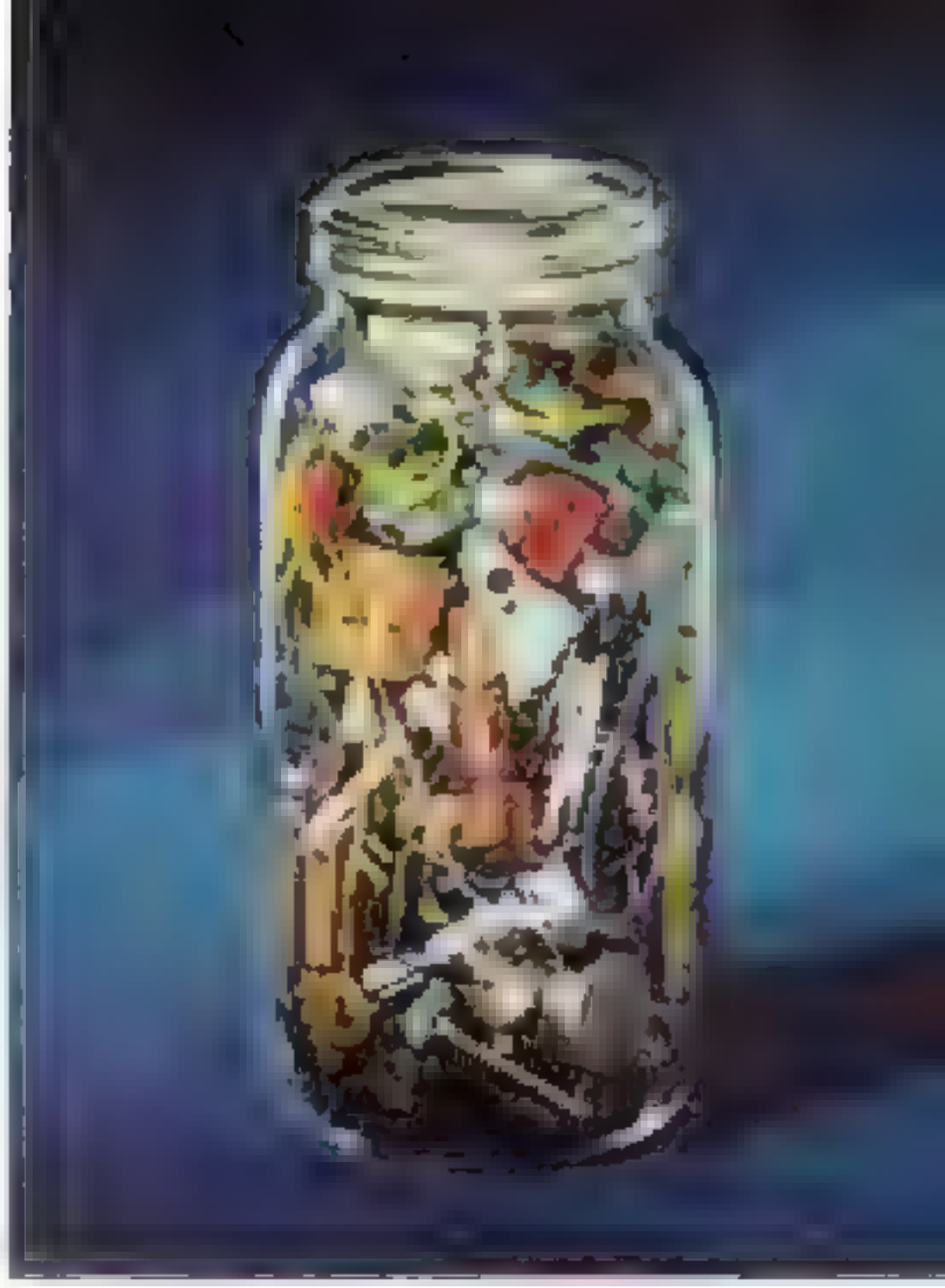


Getting there is half the fun!

No wonder more people prefer

CUNARD

A quart of things to think about before you buy a television set



ZENITH TELEVISION

You'll find all the features you want in Zenith Quality TV for 1953

Big, fine-grain pictures—[illegible]

Flawless sound—[illegible]

One-knob tuning—[illegible]

25% better long distance reception—[illegible]

Works equally well on UHF or VHF—[illegible]

The Zenith Somerset $209.95*—[illegible]


In 1853 a handful
In 1953 a host...
50 Thousand Men
to Take
Your Worries
A century ago, three of the Companies of the America Fore Group started business with a handful of employees and agents operating in limited territory.
Today, over 50,000 agents, brokers and employees provide America Fore insurance and service throughout the United States, Canada and in foreign lands.
These insurance men have contributed greatly to the growth and prosperity of our nation as pioneers, as citizens and as industrious, upstanding men from coast to coast.
When you buy insurance, only the best will do. Specify America Fore insurance and place your insurance in companies which have withstood the test of time!
America Fore
INSURANCE GROUP
★ The Continental Insurance Company
★ Fidelity-Phenix Fire Insurance Company
★ Niagara Fire Insurance Company
★ American Eagle Fire Insurance Company
★ The Fidelity and Casualty Company of New York
The Continental Insurance Company
100 YEARS
1953 marks 100 years of proven insurance protection by two America Fore Companies, The Continental and the Fidelity-Phenix,
Fire up Firms for Insurance Company

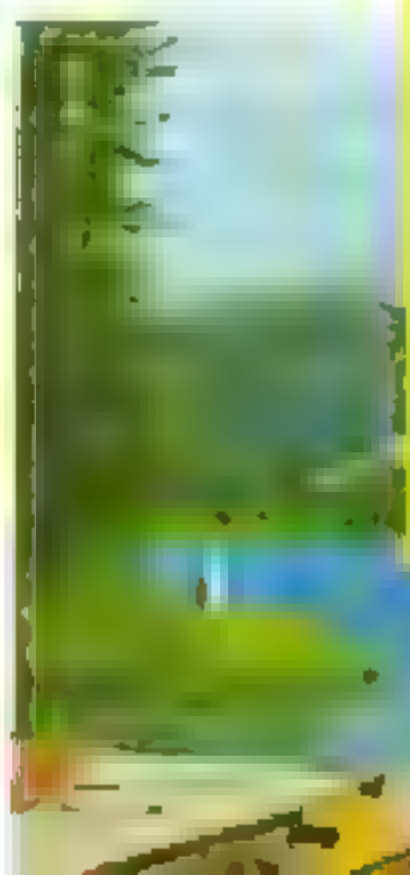
...relax in Canada

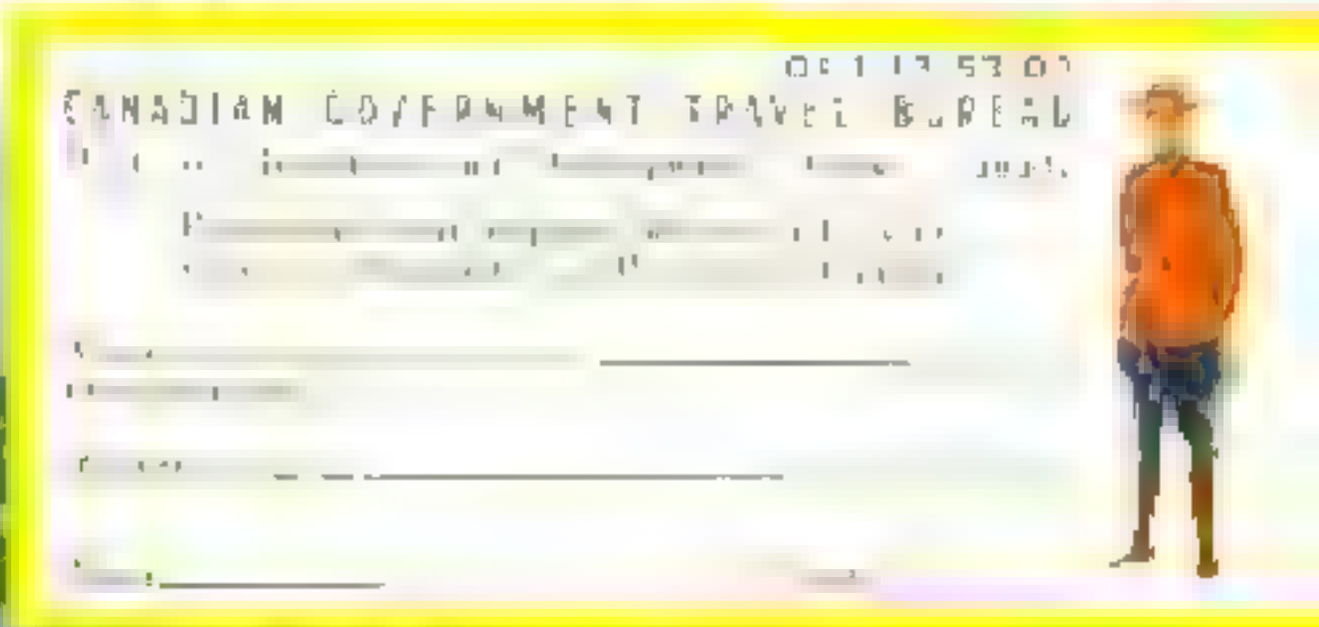
[illegible]

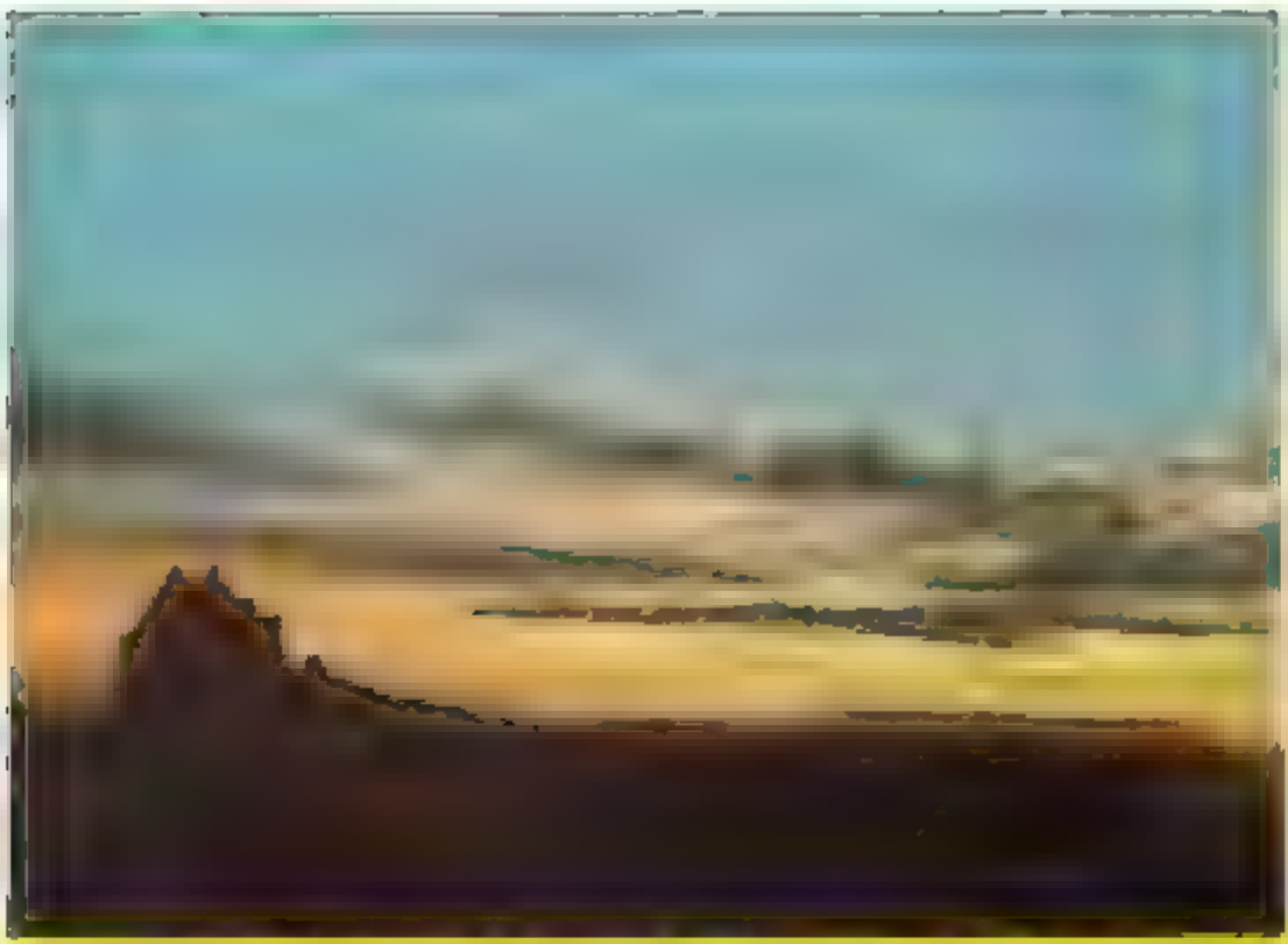
VACATIONS UNLIMITED

[illegible]

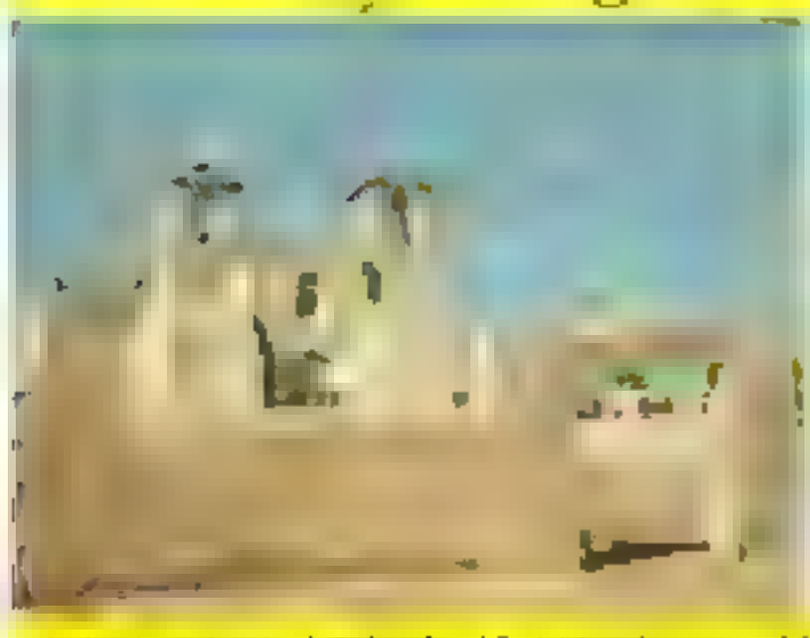
[illegible]



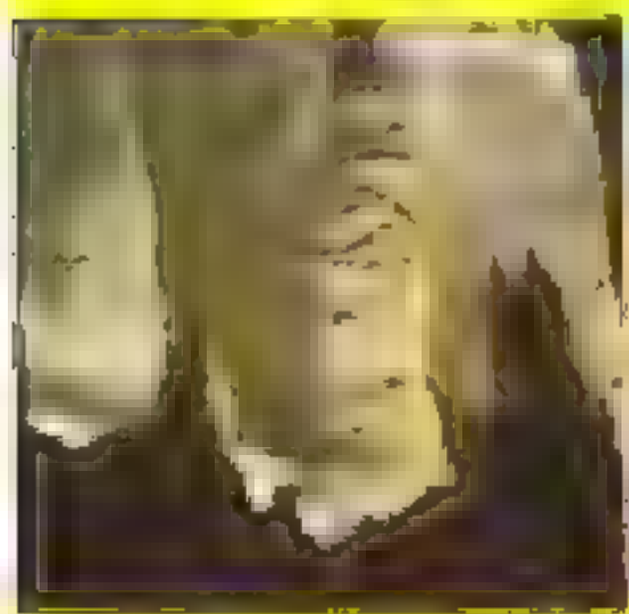




Tired of ordinary vacations? Come to big, high, cool, unspoiled



New Mexico this summer. Enjoy all of this fabulous



Land of Enchantment

New Mexico's [illegible]

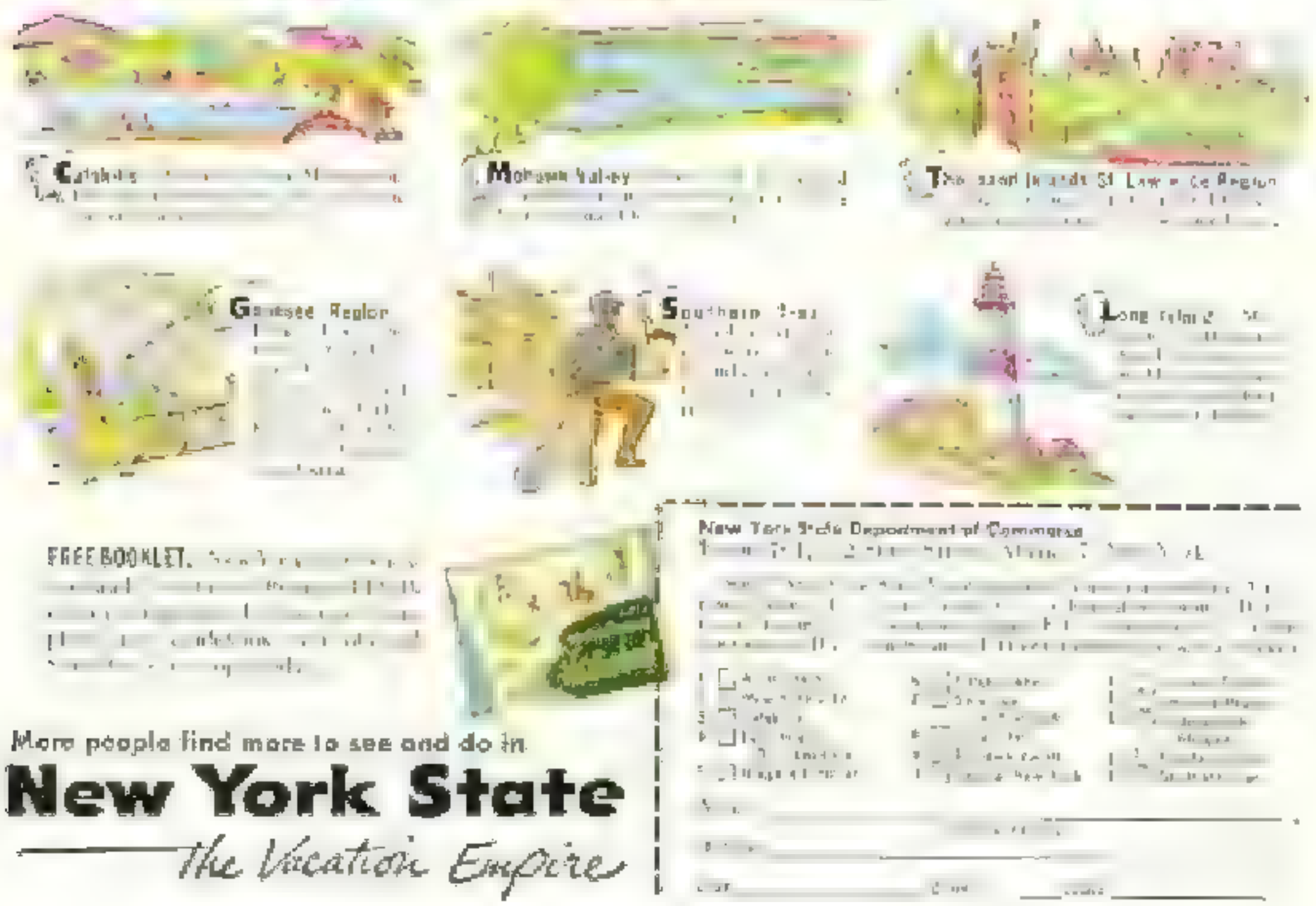
This year, treat to Adventure in

NEW MEXICO

THE LAND OF ENCHANTMENT

PLYMOUTH


NEW YORK STATE SIGNPOSTS
TIMES SQUARE
TIMES SQUARE


Catskills
Mohawk Valley
Thousand Islands St. Lawrence Region
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Southern Tier
Long Island
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More people find more to see and do in
New York State
The Vacation Empire
New York State Department of Commerce

...a wonderland of romance and adventure...

San Francisco

[illegible] Nob and Russian Hills [illegible] the world is at your feet [illegible] in this delightful city)...

The Golden Gate with its bridge is to your left. The Pacific beyond. You see the vast Bay [illegible] its islands and ships. There's Alcatraz... the new Bridge... and beyond, the rolling [illegible]

You are at the western edge of the most fascinating [illegible] in America. As your car descends to Fisherman's Wharf you see to the east [illegible] Quarter. Coit Tower on Telegraph Hill [illegible] the pagodas of Chinatown...

Learn about our pleasures and adventures [illegible] Fresno San Francisco visit in a hurry [illegible] our new *free* 16-page pamphlet, [illegible] *Exciting Days and Nights in San Francisco*. It tells you about [illegible] pictures, text and [illegible] maps. Lovely vacation [illegible] Mission Trails, Redwood Empire, Yosemite, Mother Lode Country, Lake Tahoe, Shasta-Cascade Wonderland, etc.

Write Today FOR YOUR FREE COPY

[illegible]

...Cable Car Go Around the Bay from Hawaiian Hill...

This Colt "Dragoon" model revolver was the *standard of excellence* in the days of the Old West. Shown here is a rare version of that famous tool, [illegible] presentation purposes. Photographed [illegible]

Colors [illegible] brilliant [illegible]. They're printed on Cico-Gloss [illegible]

The Standard of Excellence

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For a press run of a thousand or a million, performance is what counts in coated paper. If you're searching for a coated paper that's exceptionally brilliant, that has superior printing qualities, and consistency in its reproduction values, specify the *standard of excellence* coated paper by Champion-International of Lawrence, Massachusetts. It identifies you as a man who knows paper.

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Expect these wonderful things from Chevrolet's new high-compression power . . .

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[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

MORE PEOPLE BUY CHEVROLETS THAN ANY OTHER CAR*

This year... **let yourself go!**

ACROSS THE U.S. AND OVERSEAS... FLY **TWA**

TRANS WORLD AIRLINES

Turn back the clock 500 years

[illegible] here, and everywhere in Britain. [illegible] turn back the clock for you [illegible] ten there. Go west to Wales, and stride the ramparts of Conwy Castle, built for King Edward I in 1283

For a great vacation

Pacific Northwest

by way of Glacier National Park

Vacation *all the way*...Go Streamlined

EMPIRE BUILDER or *WESTERN STAR*

New vistas await you in the majestic Pacific Northwest . . . the Cascades and the Columbia [illegible] stop in Glacier Park, in the Montana Rockies. [illegible] free on Great Northern!

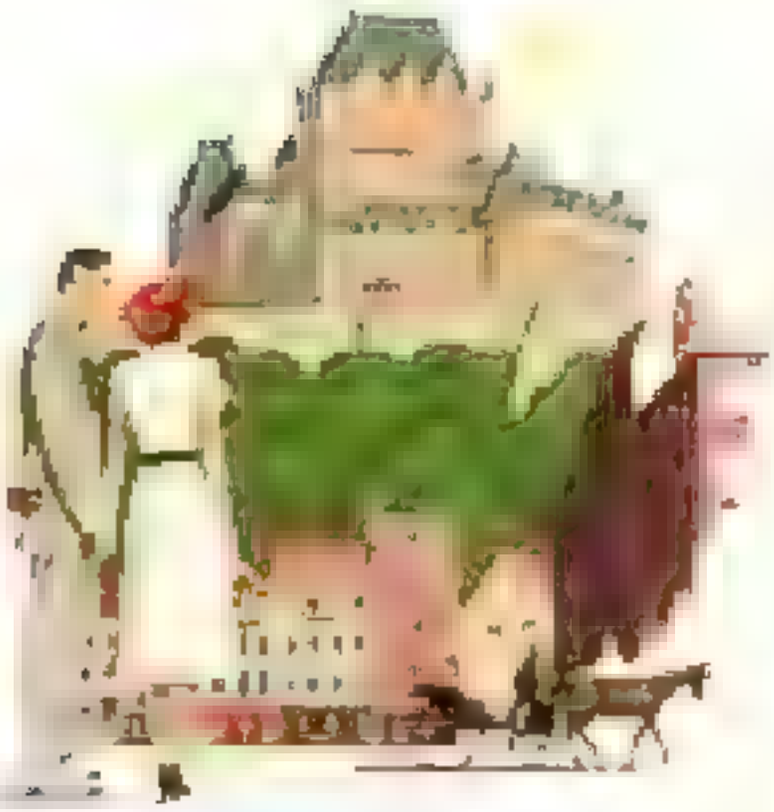
[illegible]

[illegible]

GREAT NORTHERN PASSENGER AND FREIGHT OFFICES IN PRINCIPAL CITIES OF UNITED STATES AND CANADA

Let yourself go!

See big beautiful CANADA *in armchair ease*



Like "another world" city? So [illegible] friendly Old Quebec. [illegible] de Beaupré or Isle d'Orléans [illegible] easily on luxury at [illegible] Pavillon Gouverneur [illegible]

Salty vacation? It's at [illegible] Sea. New Brunswick [illegible] across Br[illegible] Nova Scotia—h[illegible] [illegible]

See the skyscraper Canadian Rockies by Canadian Pacific *Dayrail* train. Stop over at Banff and Lake Louise, the area for thrilling budget vacations. Soaring vacs, Alpine sports. In balmy breeze-swept Victoria, British Columbia—stay at the famous *Empress Hotel*. [illegible] Sooke pot [illegible] Gardens, [illegible] all year [illegible]

All the talk's about Canada [illegible] the [illegible] t fine Canadian Pacific hotels [illegible]

Ask your own agent [illegible] New Zealand and [illegible] to Alaska [illegible]

Canadian Pacific

Canada is news! See it by Canadian Pacific.

plan a Perfect Vacation . . .

Remember

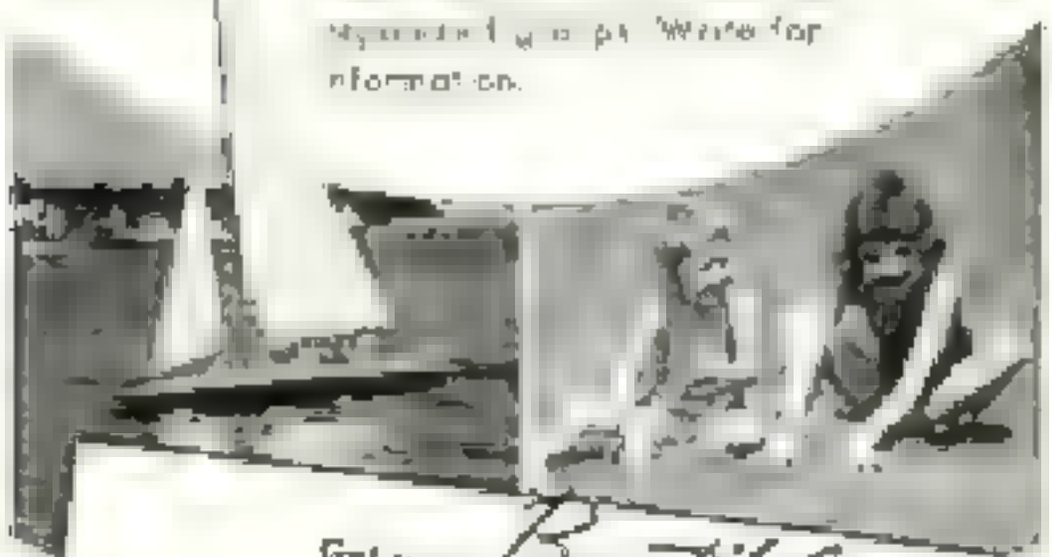
FUN'S SERVED FAMILY-STYLE in MISSOURI

"HEART OF AMERICA"

For Dad there must be plenty of invigorating sports. Mom will appreciate cool, comfortable weather with clean, friendly places to play and exciting places to shop. The children will be goggle-eyed with wonder at mysterious caves, giant springs, and all the other fun that's to be had in Missouri.

Who so d you can't please everybody? The call is just about up to you. Choose from Missouri's wide range of hotels, lodges, cabins and cottages . . . every one will help your vacation budget go far fast.

FREE color movies of Missouri vacation lands are available to organized groups. Write for information.



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AEN

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Street

City

State

MISSOURI DIVISION OF RESOURCES AND DEVELOPMENT
Dept. D341 Jefferson City, Missouri

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Prices start at $19.50 to $155, plus tax

Quality in optics sharpness and brilliance depends on the skill of scientists and precision manufacture. That's why more outdoor lovers and sportsmen than ever before choose the Bausch & Lomb Binocular. Send for 32 page free booklet, "Binoculars and How to Choose Them." Write Bausch & Lomb Optical Co., 86-01 Lomb Park, Rochester 2, New York.

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Wherever you go [illegible] unforgettable reminders of famous figures and famous events

[illegible] with pride a

- [illegible]
- [illegible]
- [illegible]
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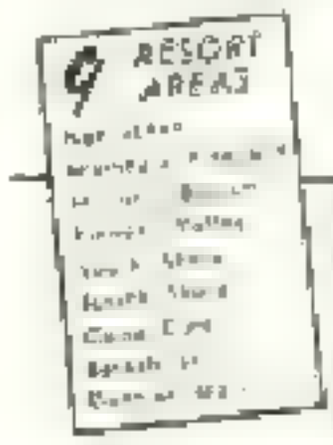

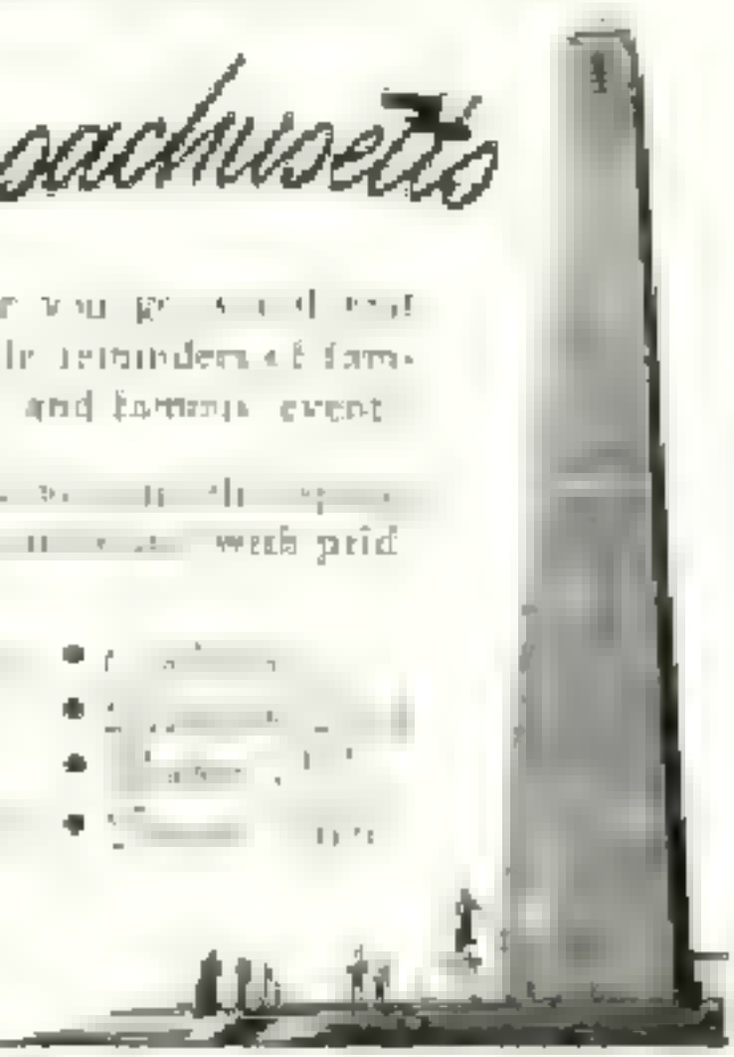

Name

Address

Last one in's a loser...

"Don't wait—don't be late planning to spend your holiday in Ontario—where you'll have the most fun! Swim to your heart's content—and the water is wonderful. The sailing is perfect on these Ontario lakes.* I've learned to water ski, and the fishing is the best I've found anywhere. Come on in . . . anywhere in Ontario the water's fine!"

*Nearly a million of them

Write today for free guide map and illustrated booklet.

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TRAVEL TIPS

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American Stationery is a practical, *economical* solution to many of your club and church stationery problems.

It's so easy to order just the amount you need. No large quantities left over when officers change. And the price is so *low* that you save money even if you require many packages! 200 note sheets and 100 envelopes for only $1.00! Paper is quality rag content bond.

You can't beat it for mailing meeting notices, dues statements, bulletins, and non-profit use. Name and address are distinctively printed on each sheet and envelope. (Maximum printing 4 lines, 30 characters per line including punctuation and spacing.)

Order yours now. Note the packages listed below. There's one to fit your needs.

$1.00 — *Standard Package*

[illegible] NOTE SHEETS [illegible] NEW IMPROVED ENVELOPES, [illegible] printed with name and address in rich blue ink.

$1.00 — *Envelope Package*

[illegible] envelopes as in Standard Package only. They sell extra quickly. All printed with name and address.

$2.00 — *Deluxe Package*

[illegible] and 125 MATCHING ENVELOPES. *Bonnier* paper. All [illegible]

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THE FINE STATIONERY IN THE PLAIN BOX

Order in quantities as listed. No "split packages" [illegible]

THE AMERICAN STATIONERY COMPANY
[illegible] PARK AVENUE, PERU, INDIANA

Proof you can See...

Du Mont Television is different

At your Selected Du Mont Dealer's, see the [illegible]

Now you, too, can afford **DU MONT**

First with the Finest in Television

Allen B. Du Mont Laboratories, Inc.
Customer Relations Dept., Box 904, East Paterson, N. J.

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ADDRESS _____

CITY _____ STATE _____

GET KING SIZE COLOR WITH

COLDE COLOR BALANCED SLIDE PROJECTION

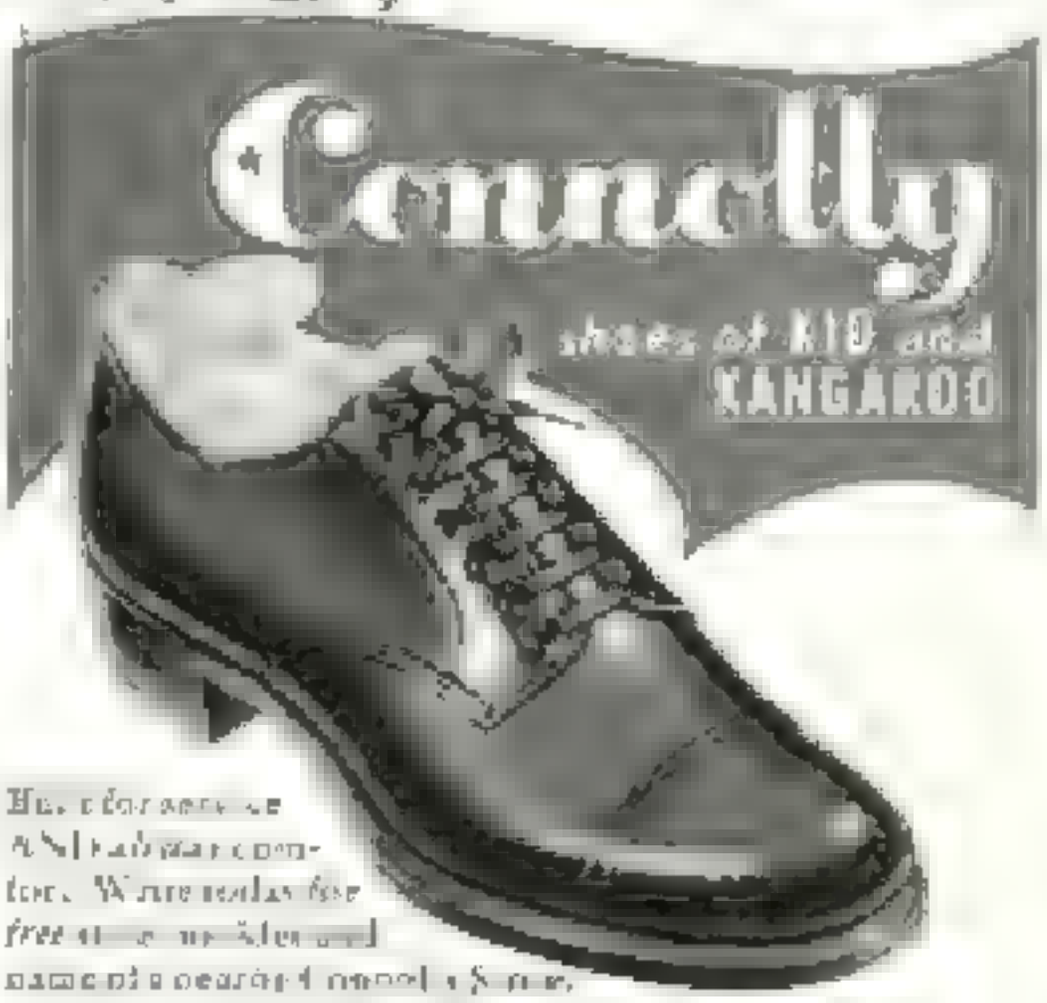
$49.95

AT ALL GOOD CAMERA DEALERS—EVERYWHERE!

Free! Write for colorful booklet

COLDE MANUFACTURING CO.

Men who are on their feet all day wear...



CONNOLLY SHOE COMPANY

it's fun

to go to California on the Golden State

VIA SOUTHERN ARIZONA, where you can look to warm sunshine at famous resorts. There's still time for a wonderful "Golden State" vacation in the Southwest. Stopover in El Paso if you like for a visit to Juarez in Old Mexico, or make your side trip to Carlsbad Caverns National Park.

CONGENIAL traveling companions add to the fun of your "Golden State" trip. Luxurious Pullman rooms are matched by fine food and courteous service in Dining Car and Lounge.

ASK FOR the streamliner "Golden State" when you make your reservations. It's the extra fast, smooth, luxurious way between Chicago and Los Angeles (Rock Island S. P. Via El Paso Tucson Phoenix Palm Springs). Through cars from Minneapolis, St. Louis.

THE "GOLDEN STATE" also offers low cost Chair Car accommodations, Coffee Shop-Lounge service. We'll warm bottle, too.

Journeying, try another of S. P.'s great fun routes (see map)

WONDERFUL WAYS WEST

C. T. [illegible] Southern Pacific Dept. "S3"
[illegible] Chicago [illegible]

Please send me free folders about S. P.'s New "Golden State" and "Overland" Sub Tropical Routes for Your Trip To California.

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"I won't risk a kiss on this . . . It's not an American Express Travelers Cheque."

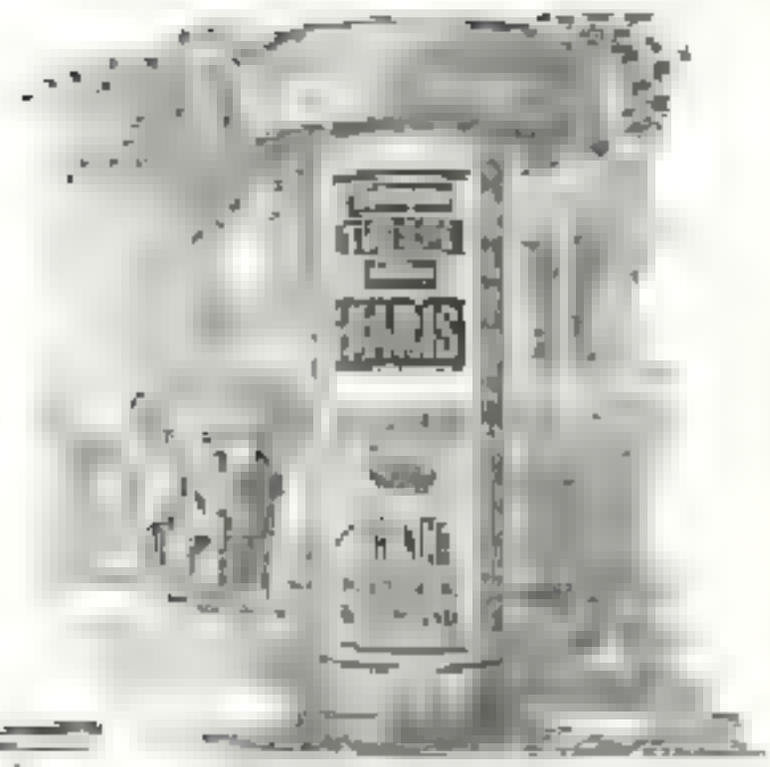
Don't flirt with trouble—protect your travel cash with American Express Travelers Cheques — the [illegible] as spendable as cash, and they're [illegible] for safety! If they're lost or stolen you get a quick refund.

Insist on American Express Travelers Cheques at any Bank [illegible] *prefer your preference for the best* (Only 75¢ per $100).

100% SAFE—EASIEST TO CASH

AMERICAN EXPRESS TRAVELERS CHEQUES

THE BEST-KNOWN CHEQUES IN THE WORLD.



France BY RAIL

For a leisurely, carefree vacation in FRANCE [illegible] be sure to secure all your tickets [illegible] before you leave. See your Travel Agent or call at any of our offices.

Free Please send me Illustrated "Railroad Map of France and Europe".

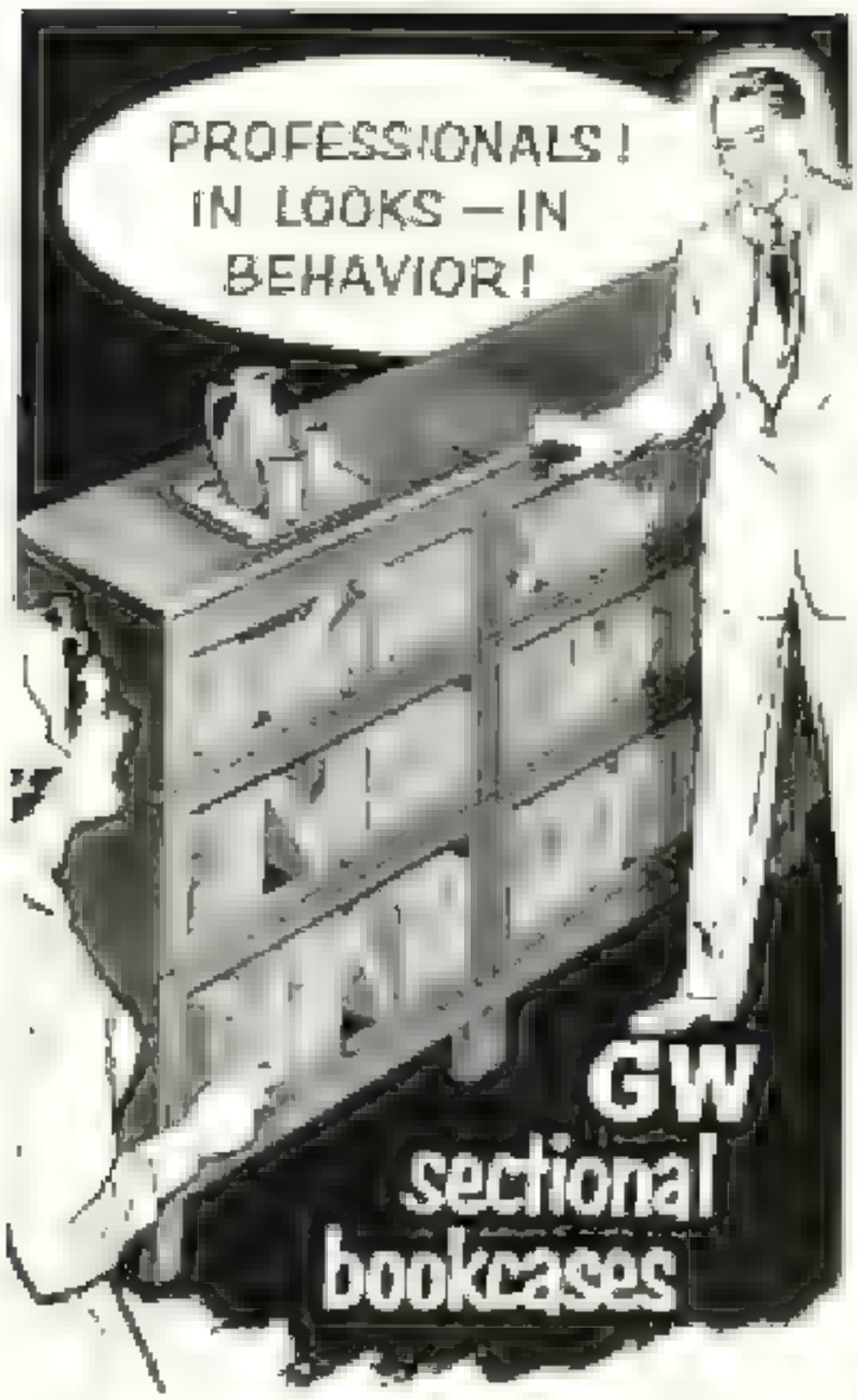
French NATIONAL RAILROADS

FRENCH NATIONAL RAILROADS, 610 FIFTH AVE., N. Y.

[illegible] with a Spring Vacation in Miami Beach. You can be [illegible] average April rainfall is less than [illegible] inches and temperatures [illegible] average 75°. Chamber of Commerce now in effect at Miami Beach's 375 hotels and 1,800 apartment buildings.

For **FREE Color Folder** and information on hotels or apartments, address, Dept. NG 457 Chamber of Commerce, Miami Beach 39, Fla.

This Message is Prepared and Published by the City Government of Miami Beach



Unmistakably professional! — G/W sectional [illegible] bookcases [illegible] wood [illegible] FIT — [illegible] with the needs of any type of professional or business office. And their always attractive appearance is [illegible] recognized public relations asset.

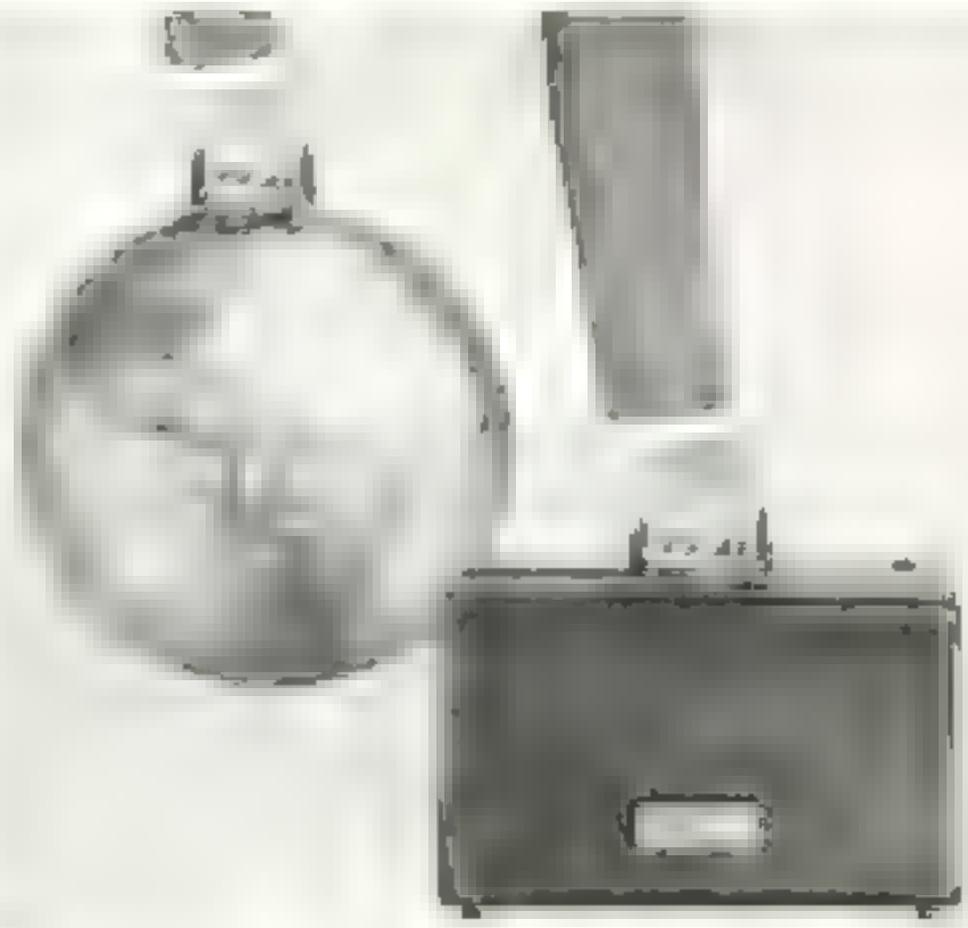
Hardwood, [illegible] good proportions of books and records [illegible] instruments. Sturdy, [illegible] steel and close quarters, these shelf designs. Are [illegible] adjustable — expandable — accommodating. En[illegible] during [illegible] sections [illegible] with top and base for on-desk use.

Displayed and sold by leading office equipment and furniture stores; detailed information — dealers' names — sent promptly on request.

GLOBE-WERNICKE

CINCINNATI 12, OHIO

Pick up the world and take it with you



ZENITH SUPER TRANS-OCEANIC RADIO

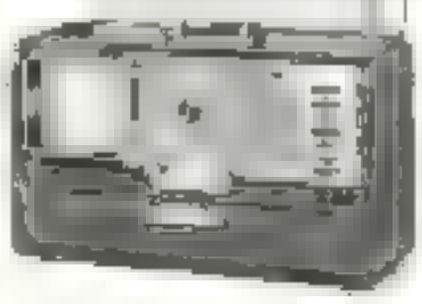
[illegible]

[illegible]

[illegible]

[illegible]

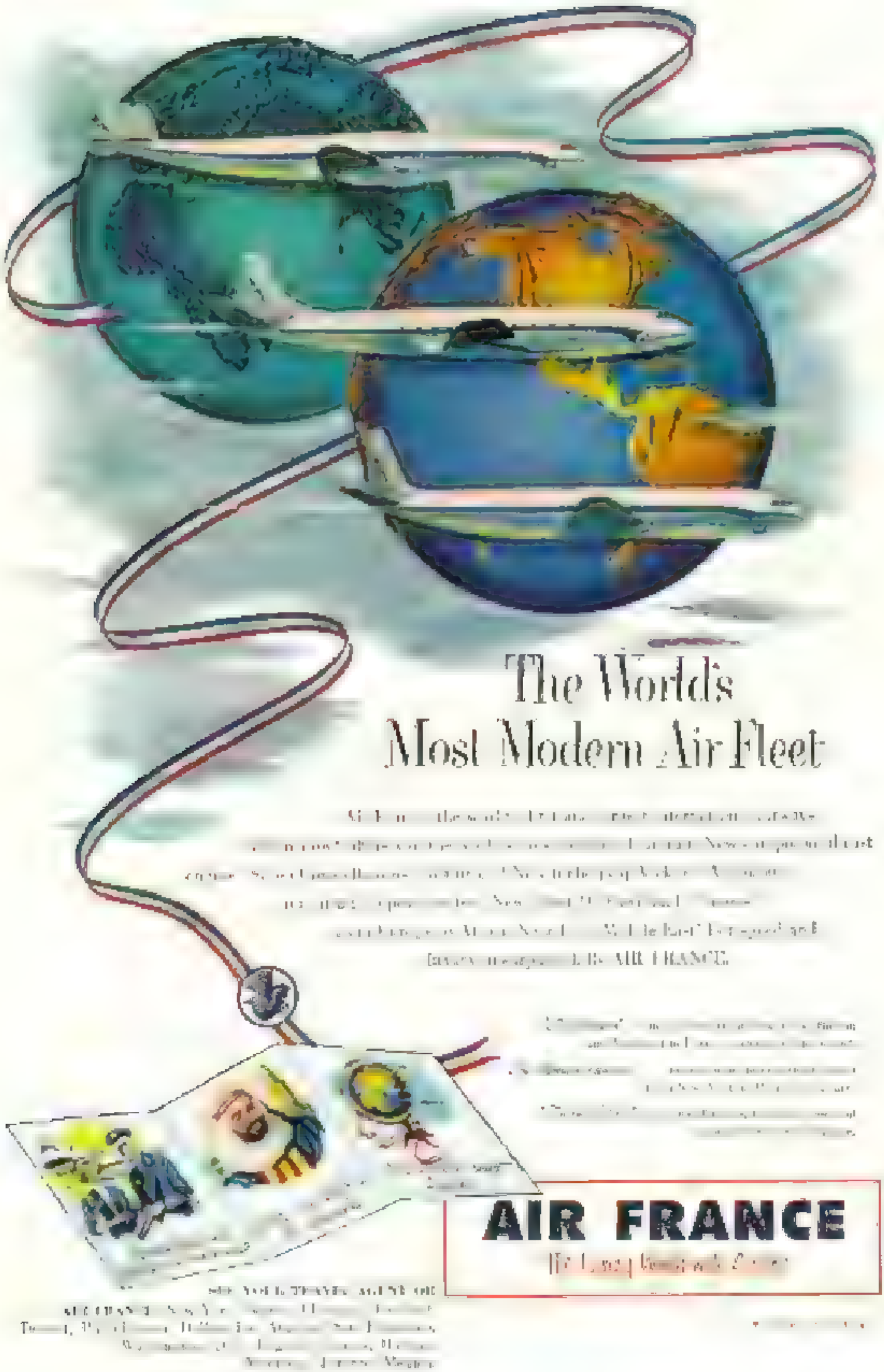
7 Tuning Bands • Works on [illegible] • Humidity-proofed Chassis [illegible]



ZENITH

[illegible] RADIO

[illegible]


The World's
Most Modern Air Fleet
AIR FRANCE

ALTOGETHER, it's more fun on New York Central!

On family trips, you'll enjoy the spacious interiors of a New York Central [illegible]

You'll enjoy New Central's fresh and [illegible] for everyone in the family. [illegible]

You'll enjoy and learn a lot from the beauty and history that parade [illegible] Water Level Route. [illegible]

Best of all, with your friends on New York Central, you'll [illegible]

Get together [illegible] *Central's Family Fares!* [illegible] making a [illegible] round trip with a parent. Ask about them.

New York Central

The Water Level Route

A scene in one of the recent laboratories of Memorial Center for Cancer and Allied Diseases, New York City. In these [illegible], research on humans is helping to shed new light on cancer.

A MESSAGE OF HOPE ABOUT CANCER

[illegible] the American Cancer Society, an estimated 700,000 persons recovered from cancer. The Society also estimates that the numbers of cases that unknown saved might be *doubled* if patients received prompt and thorough medical or surgical treatment.

Today there is hope for even greater gains in our fight against this disease. This is because medical research is constantly yielding new facts about how and why cancer develops.

Some recent research findings

In surgery—major operations can now be performed with far less risk to cancer patients. Largely because of greater surgical skill, the number of patients recovering from cancer of the bowel, neck, stomach and uterus has been more than doubled over the past few years.

In chemotherapy—or treatment with chemicals—encouraging progress is being made. Some chemical substances are now being used which temporarily inhibit the growth of a few types of cancer in human beings.

In radiology—or X-ray treatment—intensive studies are under way on devices that are not only capable of producing more powerful X-rays, but also offer hope of a more effective use of them.

What should everyone do about cancer?

First—learn cancer's warning signals which are listed below. Should any of them appear, report to your doctor at once. These signals do not invariably mean cancer. In fact, in the majority of cases the suspected symptoms are proved *not* to be caused by cancer.

Second—have periodic health check-ups. Cancer may develop without any outward warning signals. Only occasionally a physician may discover these "silent" cancers in their early stages. This is why periodic medical examinations are so important, especially for older people.

Third—do not rely on unproved methods for the treatment of cancer. Only surgery, X-rays, radium—used singly or in combination—can remove or destroy cancer.

Above all, remember that cancer is often cured . . . and that getting to your doctor early is your greatest contribution toward recovery.

CANCER'S 7 WARNING SIGNALS. 1. Any sore that does not heal. 2. A lump or thickening in the breast or elsewhere. 3. Unusual bleeding or discharge. 4. Any change in a wart or mole. 5. Persistent indigestion or difficulty in swallowing. 6. Persistent hoarseness or cough. 7. Any change in normal bowel habits. (Pain is not usually an early symptom of cancer.)

Metropolitan Life

Insurance Company

CANCER

Please send me a copy of your booklet, 413-N "Cancer."

Name _____

Street _____

City _____ State _____

THE *Distinguished* DeSoto

FOR 1953

World's Most Powerful Engine Design! *Full* Power Steering! Power Brakes!

[illegible] car this year is more exciting than [illegible] long time. More important, too, [illegible] this year the differences aren't minor [illegible] They're big [illegible]

Take the new De Soto, for instance. It's *all* new [illegible] lower [illegible] swept back fenders [illegible] lower hood for safer, "set-back-under-the" [illegible] windshield [illegible] wraparound rear window. But the differences go [illegible] deeper.

De Soto performs differently from ordinary cars. With Full Power Steering [illegible] you don't steer De Soto, you *guide* it. You have safer control for fast [illegible] soft shoulders. You park with a twist of a wrist.

De Soto's Famous Hemi Drive with Tip-Toe Shift [illegible] cruising all day without shifting. De Soto's Power Brakes need far less pedal pressure. And both [illegible]

[illegible] *really* different this year. Compare them. Find how truly noteworthy De Soto is. See it. Drive it. You'll be very glad you did!

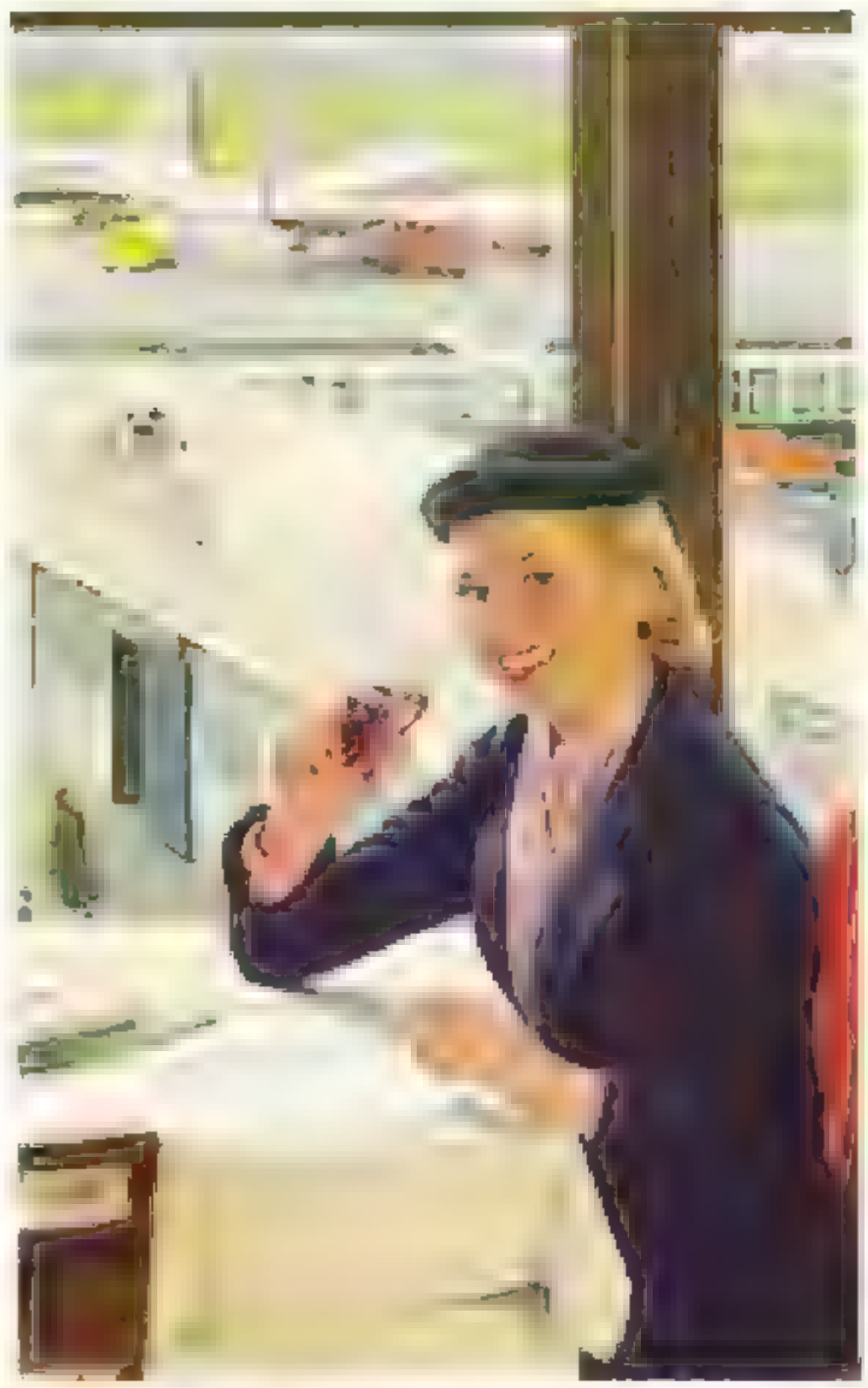
De Soto Division, Chrysler Corporation

[illegible]

DeSoto *Famous for Fine Cars*

DE SOTO FLIGHT [illegible] **GROUCHO MARX** in "You Bet Your Life" every week on both Radio and Television — NBC networks.

Busy people pause for Coke



"[illegible]

[illegible]

[illegible]

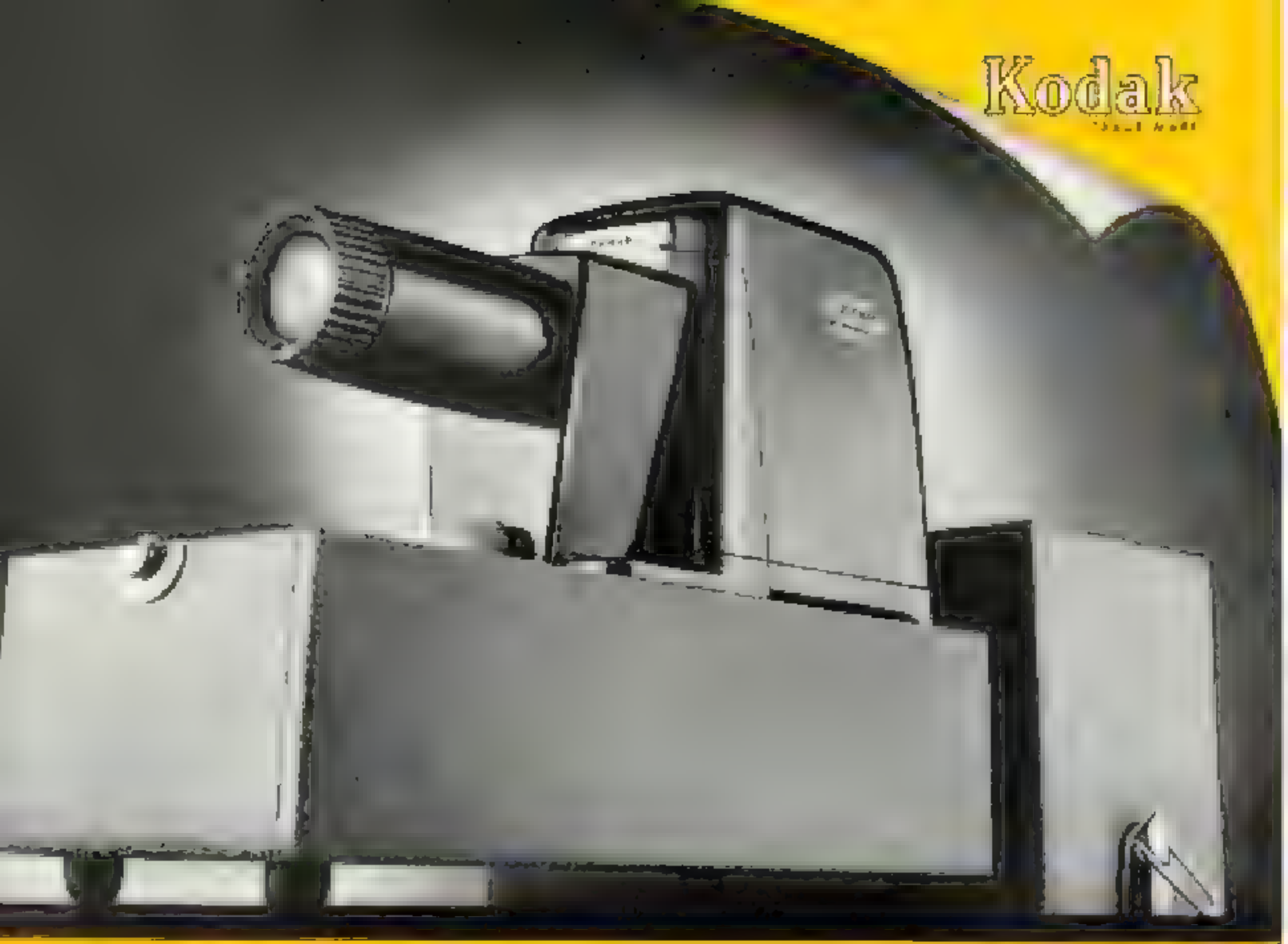
Its flavor—unique and inimitable

is blended of good things

from nine sunny climes. It [illegible]

and enjoy happy, *refreshing* moments.

You trust its quality



Super Showman

Powerful 300-watt illumination . . . [illegible]

Fine optical system . . . [illegible] Kodak Projection Ektanon Lens, Series I, f/1.5

Fan cooling . . . [illegible] glass baffles and heat-absorbing glass, long projection [illegible] from distorting heat. The fan is surprisingly quiet, and [illegible] for a professional projection.

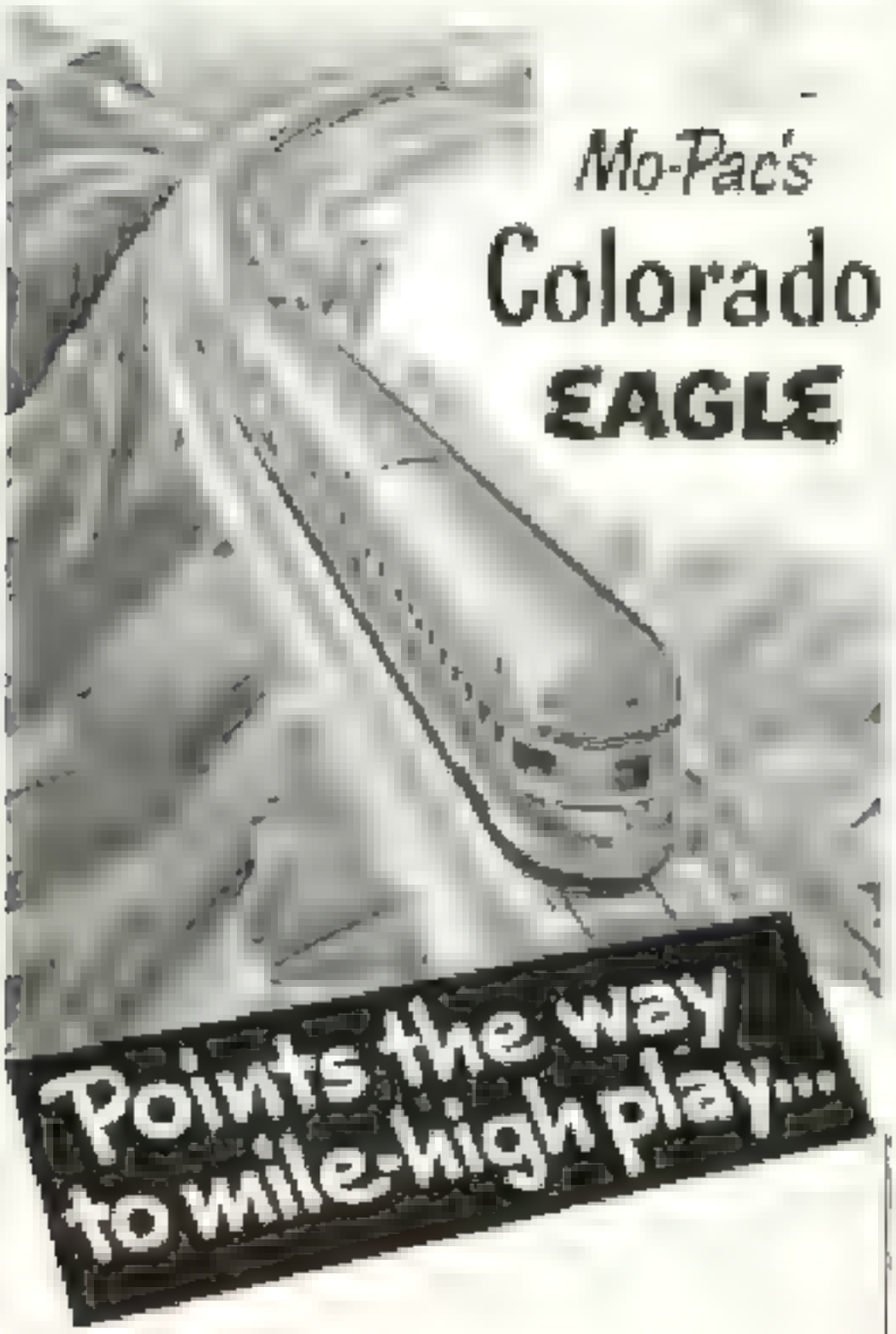
New-type slide feeding . . . [illegible]

Complete with carrying case . . . there's nothing extra to buy. Wonderful value at [illegible] See your local [illegible] Kodaslide Highlux III Projector [illegible] at your Kodak dealer.

Kodaslide Highlux III Projector

[illegible]

Eastman Kodak Company, Rochester 4, N. Y.



COLORADO . . . magnificent in mile-high splendor . . . offers countless vacation variations. MO-PAC's *phenomenal* Colorado Eagle offers you the finest and fastest *coaching* service daily to and from St. Louis to Colorado.

P. S. *You'll want to come to the Rocky Mountain West and ride the Colorado Eagle here yourself. For the vacation trail is trail this year!*

ROUTE OF THE EAGLES

R. E. McDERMOTT
Western Passenger Traffic Manager
Missouri Pacific Lines, St. Louis 3, Missouri

Please send folders and full information on Colorado Eagle service via Missouri Pacific Lines.
Also send information on:

Mexico	Texas & Louisiana Points
Southwest and Texas	New Orleans
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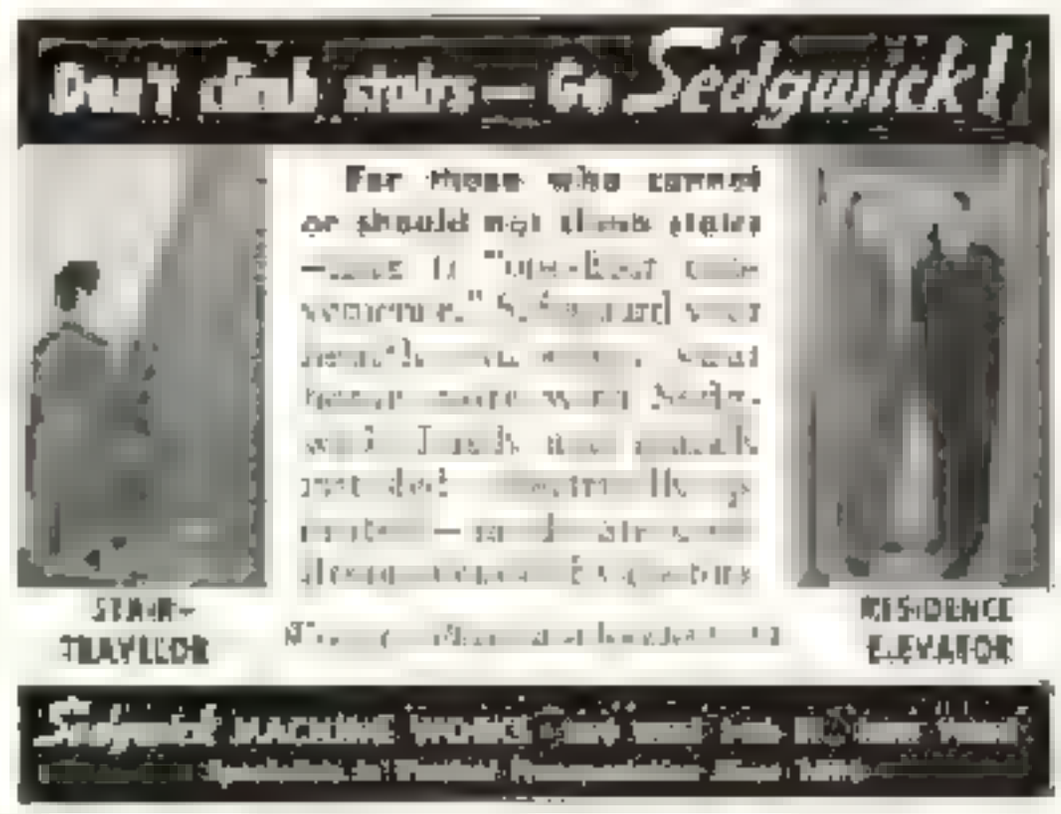
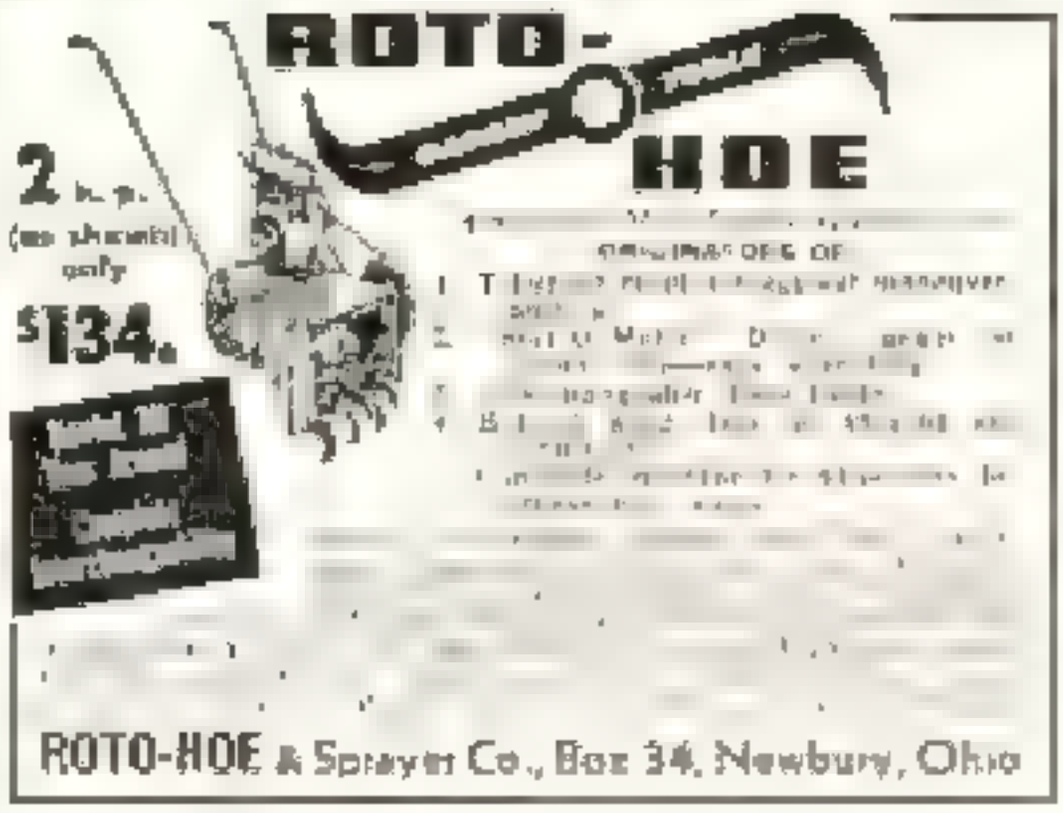
Name _____

Address _____

City _____ State _____





MORE HAULING PROFITS

Trucking has been building highway trailers with stainless steel bodies supplied by The Budd Company, since 1939. They have no record that a single one of them has ever worn out.

Stainless steel trailers weigh about fifteen hundred pounds less than conventional units. This means they can carry that much more pay load, a fact which increases in importance with more restrictive state maximum load laws.

Fleet owners, with ample opportunity for comparison, report substantial savings in maintenance costs. No paint, & corrosion resistant. And the great strength of their stainless steel construction makes them last longer, let them work harder, and produce more profit besides.

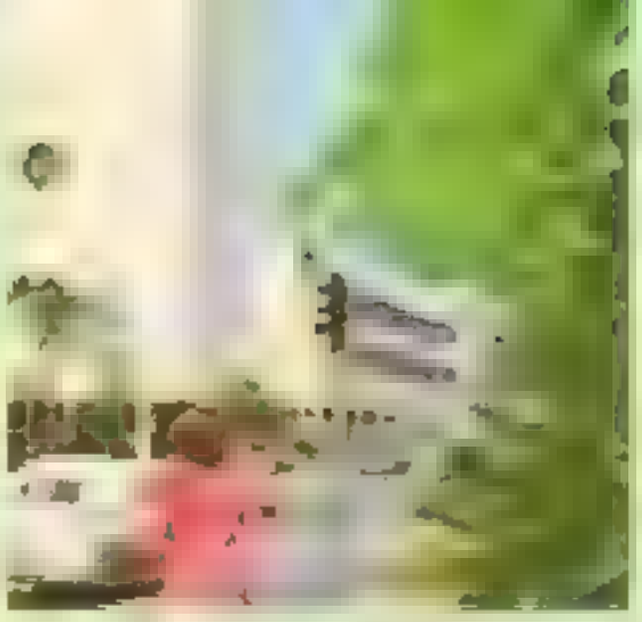
Here again [illegible] illustrated the Budd principle of [illegible] and expert design to obtain [illegible] safety in [illegible] of transportation.

The Budd Company, Philadelphia, Detroit, Gary.

BUDD

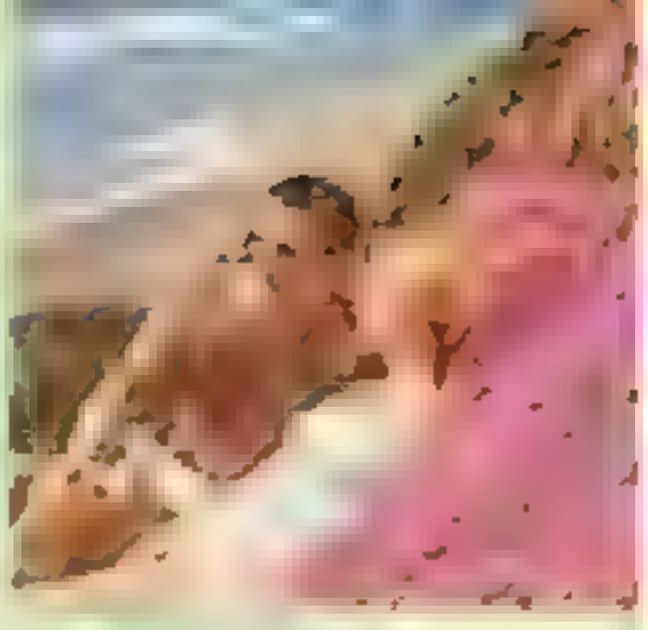
PIONEERS IN BETTER TRANSPORTATION

Santa Monica Palisades



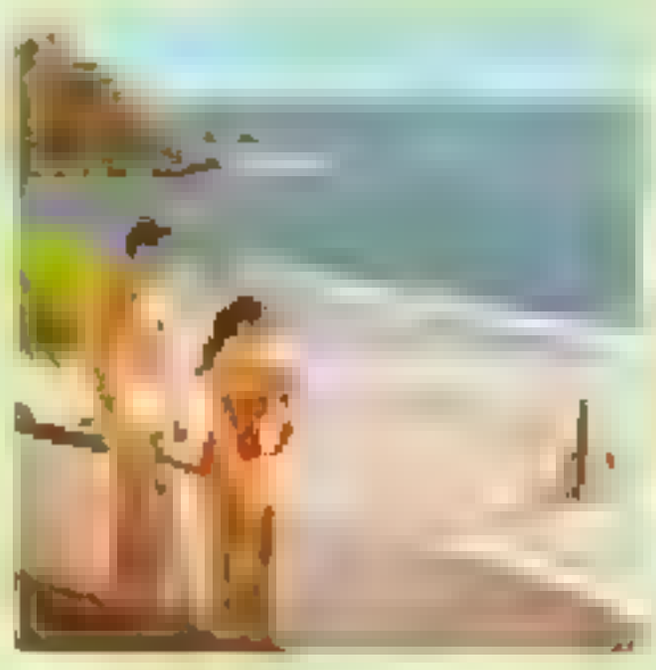
Shopping amid palms

High Sierra Lake



Acres of flowers

Jimmy Cagney's schooner



Seaside polo

Hollywood night life

Palomar Observatory

The BIG VACATION

These pictures are just samples of the contrasts and variety that make a Southern California vacation such a thrilling change for you, such a big experience

[illegible] *a reality within a half day's drive of* [illegible]

[illegible] the thrills and [illegible]

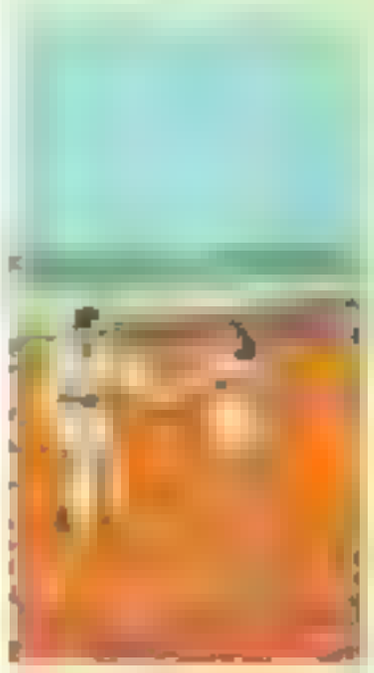
[illegible] vacation times here [illegible] sight. Costs are well in line. It's never dreamed of [illegible] Southern California ... Why not take the big vacation this year.

SOUTHERN CALIFORNIA

America's 4-Season Vacationland

Spanish mission

Wave-carved coast



Rainbow Farms

Sequoia National Park

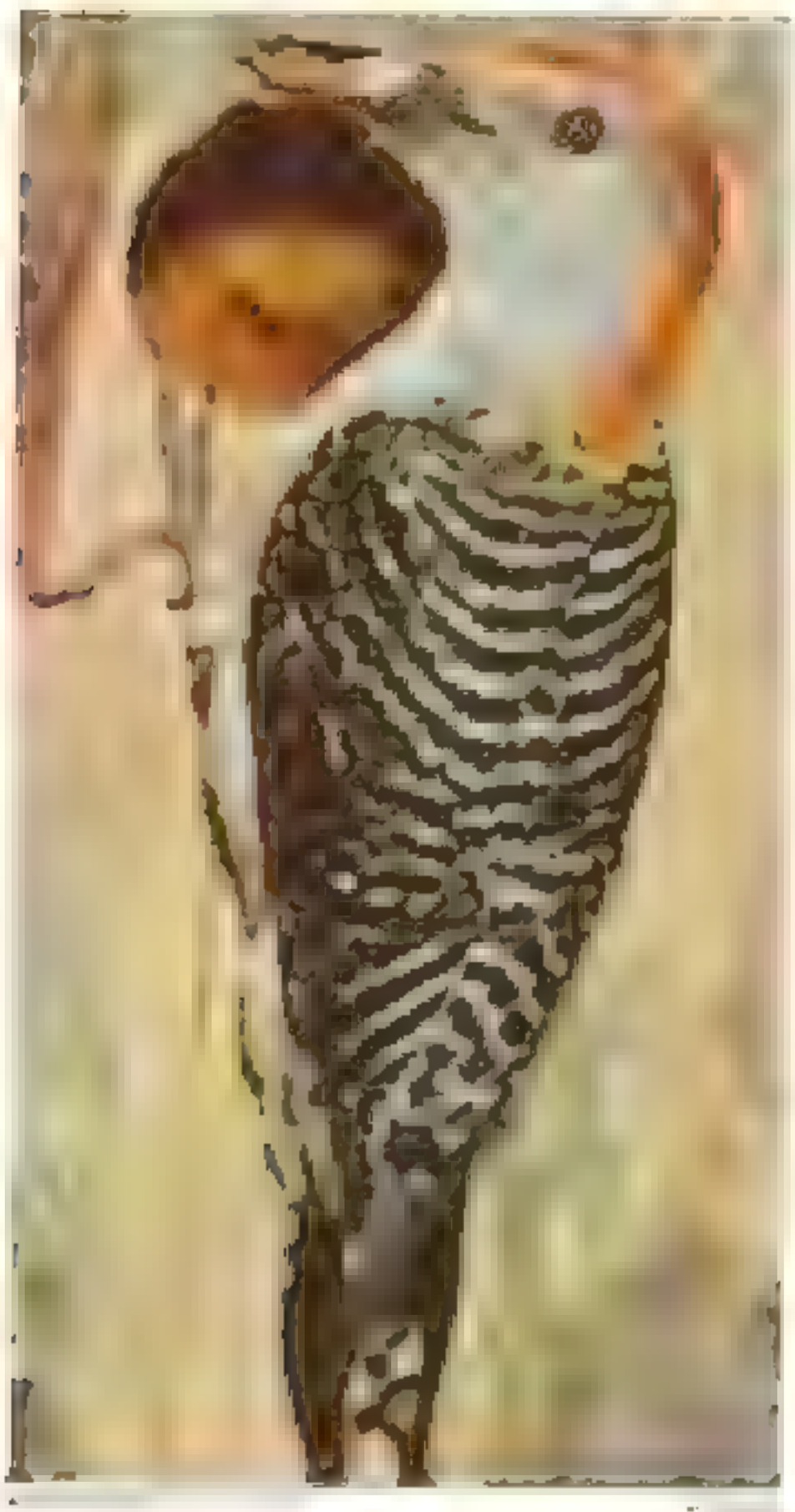
Free vacation data: All-Year Club Visitors' Bureau, 317 W. 6th, L.A.

Don't Wait— Come This Year.

FREE Color Sightseeing Map of Los Angeles County and Full [illegible]

★ ★ ★

[illegible]



Lavishly Color-illustrated National Geographic Books Reveal Bird and Fish Life

THE BOOK OF FISHES—[illegible] 540 page edition of [illegible] and life in the waters world.

[illegible] with [illegible]—identifying [illegible] species of game and [illegible] in United States [illegible] and fresh water. [illegible] to describe the [illegible]

[illegible] 10¾" [illegible] by the [illegible] Magazine, this superb volume [illegible] Postpaid [illegible]

STALKING BIRDS WITH COLOR CAMERA—[illegible] to full [illegible] Many of them were taken [illegible] at the wild [illegible]

[illegible] Postpaid [illegible]

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FAIRFAX HALL

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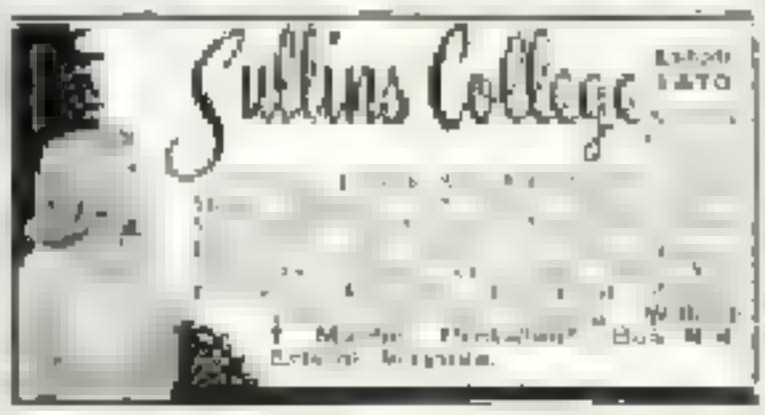
OAK GROVE A FRIENDS SCHOOL For Girls

SOUTHERN SEMINARY & JUNIOR COLLEGE

STRATFORD COLLEGE



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Recommendation for Membership

IN THE

NATIONAL GEOGRAPHIC SOCIETY

** The Membership Dues, Which Are for the Calendar Year, Include Subscription to the National Geographic Magazine*

To the Secretary, National Geographic Society,
Sixteenth and M Streets Northwest, Washington 6, D. C.; _____ *1953*

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PRINT NAME OF NOMINEE

Occupation _____
(This information is important for the records)

Address _____
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_____ *for membership in The Society.*

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8-53

The Daisy . . . Its Symbolism: The flower that says to little children, "He loves me, he loves me not," that speaks of youth and innocence and hope . . . and like a prayer, keeps its face toward heaven. In olden times it was called the "Day's-eye" because it opened by day and went to sleep at night. In monument symbolism, the Daisy portrays the innocence of the Holy Child and is often used to express a gentleness of soul.

"My daughter and I remember..."

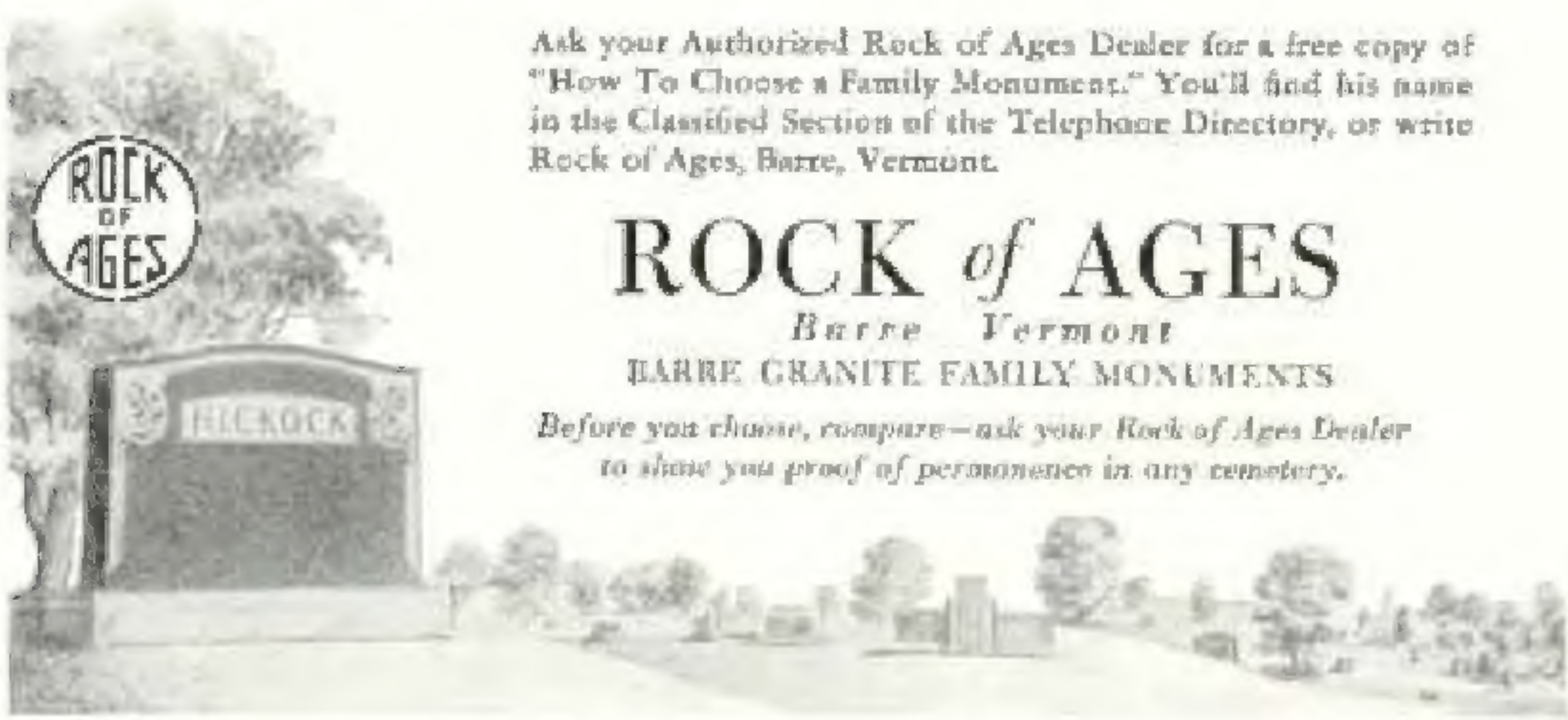
"We remember what she meant to us—every day of the year.

"For how can we forget her slow smile . . . her cheerful voice . . . the love she gave to both of us?

"Putting flowers on her grave is one way to kind of tell her that we still love her. And her monument, too. It's strong and graceful—and goodlooking—just like her.

"The loveliness of our family monument in our cemetery is a perfect expression for one as fine as she. We go there often, my little girl and I, to see how beautiful her resting place is, and to remember how wonderful she was."

To capture in granite the personal sentiment you carry for the memory of a loved one is an artistic achievement. Authorized Rock of Ages Dealers are selected monument craftsmen. On their finest memorial tributes, you will always find the Rock of Ages trademark seal.



Ask your Authorized Rock of Ages Dealer for a free copy of "How To Choose a Family Monument." You'll find his name in the Classified Section of the Telephone Directory, or write Rock of Ages, Barre, Vermont.

ROCK *of* AGES

Barre Vermont

BARRE GRANITE FAMILY MONUMENTS

Before you choose, compare—ask your Rock of Ages Dealer to show you proof of permanence in any cemetery.

"You could never without a telephone"

by Ann Loeb

The telephone is used in sending many different messages. Here are some of them.

It helps report fires, floods and that people have fallen into deep water and need a doctor very quickly.

Children use the telephone by inviting other people to parties or other children to come over and play, and it is used in talking each other nonsense.

Housewives use it for calling the grocery store for orders.

Fathers use it in business.

The telephone was invented by Alexander Graham Bell. It was born March, 1876.

You could never without a telephone — and use manners if you are listening or talking.

The telephone is one of our great friends today so take care of it.

The End

When Ann Loeb wrote this third-grade theme in her school in Ottawa, Illinois, she had no idea her father would send it to the telephone company. Not a word has been changed. The handwriting is Ann's. So are the pictures, which she drew later at our request.

BELL TELEPHONE SYSTEM

Your Dream Becomes a Living Romance!

Cascades of color tumble from the deck . . . the serpentine breaks . . . then, with Island songs voicing the promise of Hawaii, the LURLINE gently moves into the setting sun. The shore line disappears... and you soon discover Hawaii's special charm is everywhere on this lovely liner. You see it in the soft, strange beauty of the LURLINE . . . you sense it in the gaiety and friendliness of ship sports and parties, of movies, dancing and relaxing with congenial shipmates . . . you experience it in the wonderful food and thoughtful service, in the luxurious comfort of your accommodations. In it all you see reflected over seven decades of Matson experience on the Pacific . . . and it's all included and twice enjoyed in your round-trip fare.

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